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ABSTRACT

This publication reports the results of an extensive study of the characteristics and needs of secondary education in Western Australia. In its investigation, the committee was instructed to examine educational developments outside Western Australia, to assess the educational needs of Western Australia, and to recommend changes in the future organization, structure, and curriculum of secondary education in Western Australia. In developing its recommendations, the committee discussed evidence and statements submitted by 31 organizations and 25 individuals, examined previous reports on education in Australia and other countries, and considered the findings of special investigations into current educational research. The first three chapters of the report describe the study and discuss present educational structures and trends in Western Australia, while the remaining chapters deal with future educational developments in Western Australia and present the committee's recommendations. (JG)

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SECONDARY EDUCATION
IN
WESTERN AUSTRALIA

Report of the Committee on Secondary Education
appointed by the Minister for Education in Western Australia
under the Chairmanship of Mr H. W. Dettman,
Perth, February, 1969

EA 007 781

THE EDUCATION DEPARTMENT OF WESTERN AUSTRALIA

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LETTER OF TRANSMITTAL

3rd February, 1969

The Hon. E. H. M. Lewis, M.L.A.,
Minister for Education,
R. & I. Bank Building,
Barrack Street,
Perth, W.A., 6000

Dear Mr Lewis,

I am pleased to present to you the Report of the Committee which you appointed in June, 1967, to make recommendations with respect to Secondary Education in Western Australia. The Committee was asked, in particular, to investigate educational developments elsewhere, to assess the needs of Western Australia and to report in due course on the future organization, structure and courses required to meet these needs.

At the outset the Committee issued a general invitation to the public to make submissions and replies were subsequently received from 31 organizations and 25 individuals and their points of view discussed at the invitation of the Committee. Lists of submissions and persons interviewed are given in Appendix 1. I would particularly draw your attention to the large body of teachers who were actively involved in the preparation of the valuable submissions which were made by the various committees of the Achievement Certificate Project.

The Committee met regularly and discussed all matters within its terms of reference. All submissions were examined and the issues raised were given careful consideration. Previous reports on education in Western Australia and other Australian States as well as overseas were also examined and special investigations were conducted into the research evidence available where this was found necessary. We were fortunate to have available two particularly useful documents. The first was the Statement on the Mental Abilities and Learning of the School Child prepared by Mr L. Pond (at the time Senior Lecturer in Psychology at Claremont Teachers' College), and the second on adolescence was specially prepared at the request of the Committee by Dr D. K. Wheeler (Reader in Education at the University of Western Australia).

In conclusion I wish to express my gratitude to the members of the Committee for the willingness with which they have undertaken their task and for the valuable contributions which they have made towards planning the future of secondary education in this State.

Yours faithfully,

(H. W. Dettman)
Chairman

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SYNOPSIS

Secondary education in Western Australia has long been dominated by the requirements of external examinations. Indeed it could be stated that the basic aim of secondary schools has been to enable students to pass the examinations conducted by the Public Examinations Board and so qualify for Junior and Leaving certificates. The result has been that teachers have concentrated on the examinable aspects of the curriculum almost to the exclusion of everything else. External examinations not only act as a constraint to proper curriculum development and teaching methods but also are unreliable instruments of evaluation based as they are on a limited sample of work at a particular time. Hence we have recommended that external examinations should be discontinued and replaced by internal school assessments. The last Junior examinations should be conducted in 1971 and the last Leaving examinations in 1973 (paragraphs 164-171).

A board to be known as the Board of Secondary Education should be established to exercise a general overview of the secondary curriculum and to be responsible for the award of certificates of secondary education based on internal school assessments. Measures taken by the Board to ensure satisfactory comparability of standards among schools should include the provision of standardized tests and the appointment of moderators. Discussions should be entered into by the Board and authorities responsible for tertiary institutions to establish satisfactory entrance requirements (paragraphs 172-184).

Secondary schools freed from the restraints of external examinations should be able to concentrate on the broad aims of education directed towards the promotion of each student's intellectual development (paragraph 74), integration into society (paragraph 75), physical and mental health (paragraph 76), economic competence (paragraph 77) and emotional and spiritual growth (paragraph 78). The purpose of education is not merely to transmit culture but to equip students for future decision-making with a view to the improvement of society (paragraph 62). Secondary schooling is particularly significant in the total education of the individual, but parents and the community generally must also accept major responsibilities, especially in the moral and spiritual areas. The school's prime responsibility lies in the area of intellectual development. The school should also supplement for some children the inadequate and perhaps detrimental influences of poor homes and environments (paragraph 80).

All students should be encouraged to obtain as much education as possible for the following reasons:

(i) the functioning of our democratic society depends on a well-educated citizenry (paragraph 62);
(ii) there is much more knowledge to be learnt and the frontiers of knowledge need to be expanded (paragraph 68);
(iii) the continued expansion of our technologically based economy is likely to depend upon the availability of skilled manpower (paragraphs 63-67);
(iv) employment opportunities for individuals can be expected to depend to an ever-increasing extent on their level of education (paragraphs 63-67); and
(v) participation in creative and artistic activities can develop a cultural background which will enable a person to lead a fuller and more satisfying life.

Secondary schools contribute to the achievement of the aims of education through appropriate courses of study. There are probably many courses through which the aims could be implemented and we have not specified one course for all schools to follow. However, there are certain basic principles to be derived from our knowledge of child development, the process of learning and the nature of society which we believe should be a feature of all courses of study. Within this framework schools should be encouraged to design their own courses, or adapt other courses, to suit the particular needs of their students.

The basic principles upon which all secondary school courses should be based are:

1. Courses should be designed to achieve the broad aims of education (paragraph 82).
2. Courses should be differentiated according to student ability to enable all students to experience challenge and success to the greatest extent possible (paragraph 89).
3. Secondary courses should not be regarded as separate and distinct from primary school courses, but rather should consolidate and build on them (paragraph 90).
4. The understanding and use of information should be emphasized rather than its memorization (paragraphs 91-92).
5. Schools should give a high priority to teaching students how to learn and should emphasize student learning rather than the teacher's teaching. Students should be actively involved in the learning process and this activity should include, in particular, thinking, responding and being rewarded (paragraph 93).
6. The material included in school courses should be significant in life situations and it should be taught in such a way as to facilitate transfer (paragraph 94).

7. Teaching should aim to establish interest in the subject being studied and learning should go forward in conditions of low anxiety (paragraph 95).
8. Schools should foster creativity by allowing students freedom to exercise some independence and originality (paragraph 96).

Since the aims of education are of necessity very generalized, they do not serve as a very useful guide to action for teachers concerned with the teaching of specific subjects. For this reason, and because of the impact of examinations, we recommend that objectives for each of the subjects taught in secondary schools should be formulated and stated in behavioural terms, and that the evaluation of students should be made in terms of all these objectives (paragraphs 83-85). School authorities should be alert to the need for subject syllabuses to be co-ordinated into a total curriculum which will satisfy the needs of individuals and of society (paragraphs 86-88). Students should not have to make early decisions in relation to courses which may seriously limit their future career opportunities. Secondary schools should concentrate their attention on providing students with a broad general education which will help them to become intelligent citizens, and also serve as a sound basis for further education in whatever area a student elects to proceed. The subjects English, health and physical education, mathematics, science and social studies are regarded as central to any such programme. Foreign languages, art, music, manual arts, home economics and other subjects should be made available on an elective basis as they fulfil a vital need in providing for individual interests and capacities, while at the same time contributing to general education. The more general education a person has, the broader is his choice of future occupation and the more adaptable is he likely to be to the changing world of work (paragraph 109).

In general, the Achievement Certificate proposals are in keeping with the basic principles for course construction enunciated above, and we would favour their extension to encompass all years of secondary education.

Secondary schools should provide students with pastoral care and the opportunity to contribute to their own development. There is a need for guidance and counselling, particularly in relation to such controversial issues as the moral aspects of sex and religion. All teachers must accept the inculcation of the moral values upon which our society rests as a concomitant responsibility in all their relationships with children (paragraphs 97-104). The present arrangements for religious education in Government secondary schools should be modified. Church authorities should concentrate their resources on Special Religious Instruction in First Year, and in subsequent years religious education should be made available as an optional subject to be taught by specialist teachers (paragraph 105).

The usual pattern of school organization adopted in Western Australian secondary schools at present is streaming, or the grouping of students according to general ability. As a result of a detailed study of the available evidence on the subject, we are convinced that the practice should be discontinued. The theoretical framework upon which it is based—that is, of intelligence being dominated by a massive general ability component—is no longer acceptable. In practice, streaming is at best ineffective, and can become harmful when it lulls teachers and parents into believing that, because there is grouping, the school is providing differentiated education for pupils when this is not the case (paragraphs 115-126). It is this provision of differentiated instruction which is essential to cater for individual differences among pupils. We recommend a multi-level approach for the core subjects, English, mathematics, science and social studies, but a unit progress approach may prove more appropriate for the other subjects (paragraphs 127-135). Cross-setting and group teaching offer promise as effective organizational arrangements to facilitate the provision of such differentiated instruction, and we recommend that they should be introduced into the secondary schools (paragraphs 136-137).

Special provisions should be made for gifted students as well as for the handicapped. Selected schools should provide classes for students with gifts or handicaps in specific subject areas, and in other areas these students should be integrated into the regular school programme (paragraphs 138-139).

Operational decisions such as the grouping or course placement of students should be based on their records of achievement rather than any hypothetical intelligence or ability (paragraph 140). Important decisions such as these should be regarded as flexible, being subject to change in the light of future achievement (paragraphs 141-143).

We believe the recommendations made in this report will stimulate an increase in the number of students staying longer at school, but we are of the opinion that the age of compulsory attendance (15 plus) should not be raised at present. Students should be encouraged to stay at school by courses which meet their needs but requiring them to stay at school before such courses are available could prove disastrous (paragraph 148). In general, the policy of chronological promotion of students through primary school and into secondary school should continue, but there should be sufficient flexibility to allow for some acceleration as well as retardation. These decisions should be made on the basis of physical, emotional and social as well as intellectual development and any acceleration or retardation should take place as far as possible in the lower primary grades (paragraph 149).

Because development is a continuous process proceeding at different rates for different individuals, there is no one best age for transfer from primary to secondary schools which can be justified on psychological grounds. Decisions in this regard can therefore be made, within limits, on administrative grounds. As the inclusion of Grade 7 pupils in Western Australian secondary schools would result in a substantial increase in the size of the larger schools, we recommend that the age of transfer from primary to secondary schools should continue to be twelve plus as at present (paragraphs 150-152).

The vital factor is not the age of transfer but the process of transition. The final years of primary and the early years of secondary schooling should be planned as transitional years during which time there should be gradual changes in curriculum and teaching procedures (paragraphs 153-157). As stated previously, the major function of the secondary schools should be to provide all students with a sound general education. Nevertheless, provision should always be made for smooth transition between one phase of education and the next. For this reason we recommend that the final year of a student's secondary schooling should be oriented to the next phase of his career, whether this be employment or further full-time education (paragraph 158). Investigations into the pre-vocational needs of boys and girls should be continued with a view to extending the courses available (paragraph 159). Secondary schools should contribute to a smoother transition from secondary to tertiary education by giving students a greater measure of self-responsibility, particularly in the final year (paragraph 160).

Arguments have been advanced in some quarters that secondary education should be extended to a sixth year. These arguments stem mainly from the high first year university failure rates; but many students already make a successful transition from school to University, and, for this reason, and because of economic considerations, we believe that a more flexible approach is warranted. There should be NO requirement that all students spend a sixth year in secondary schools in order to matriculate. However, provision for a sixth year should be made for those students with university potential, whose academic performance or level of maturity is such as to militate against immediate success in a tertiary institution (paragraphs 161-162).

Where adequate facilities are not available locally, students should be helped to attend larger schools by the payment of boarding allowances. This will necessitate some expansion of existing hostel accommodation (paragraph 163).

We envisage considerable changes in the role of the teacher. He should become less a dispenser of information and more a person who structures learning situations and guides learning activities. He is likely to be able to specialize more in relation to the subjects which he will be required to teach, but will need to have a better understanding of the nature of adolescence and the process of learning. Despite these changes, the success of any educational programme will continue to depend largely on the contribution made by teachers. Hence we believe that the implications of this report for the pre-service and in-service education of teachers should be investigated by the responsible authorities (paragraphs 186-188).

The provision of adequate resources helps teachers carry out their duties more effectively. These resources include buildings and facilities, instructional materials and educational technology (paragraphs 189-192). The quality of education is dependent to some extent on the investment which the community is prepared to make in it. The progressively greater investment in secondary education being made by Western Australia is evidenced by increasing student retention rates and decreasing student/teacher ratios. We trust that these trends will continue to parallel the economic development of this State (paragraphs 193-200).

In conclusion, we believe it is important that a public relations programme be initiated to interpret these recommendations to the public and in particular to employers (paragraph 201).

PART I—BACKGROUND

CHAPTER 1

INTRODUCTION

1. In June 1967, the Minister for Education (the Hon. E. H. M. Lewis) set up a committee to investigate and report on the future organization of secondary education in Western Australia. This committee came to be known as the *Committee on Secondary Education*. It has met under the chairmanship of Mr H. W. Dettman (Director-General of Education) and includes members from independent schools, Catholic education, the University of Western Australia and the Education Department.

Terms of Reference

2. The Minister stated the terms of reference of the Committee in broad outline as follows:

> To investigate developments elsewhere, assess the needs of Western Australia and, in due course, report on the future organization, structure and courses required to meet these needs, and to make recommendations.

The Structure of the Report

3. The proposal to set up the Committee on Secondary Education must be seen against the background of recent important developments in secondary education in this State. Of particular significance are the reports of previous committees and the review of developments made by the Education Department in 1964. This background (Chapter 2) and a description of secondary education in Western Australia at the present time together with an analysis of discernible trends (Chapter 3) constitute the first part of this report. In the description of secondary education, attention is focused particularly on those aspects which have warranted recommendations for change.

4. The second part of this report contains the recommendations of the Committee for secondary education in Western Australia for the 1970's. Chapter 4 is devoted

to an examination of the aims of education and the role of the secondary schools in satisfying the needs of the individual and of society in the changing world of today. Chapter 5 deals with the basic principles derived from our knowledge of child development, the process of learning and the nature of society, which should be a feature of the courses of study in all secondary schools. Comments are also made in relation to the more specific proposals brought forward by the Achievement Certificate Central Council. Chapter 6 contains proposals for school organization which are designed to allow for individual differences in ability and interest. Matters related to the structure of secondary education are dealt with in Chapter 7; important issues considered include compulsory education, the age of transfer from primary to secondary schools and the length of secondary education. Problems associated with examinations and the certification of students receive special attention in Chapter 8.

5. A number of relevant issues which we feel should be the subject of further comment are included as Chapter 9.

6. Certain terms used in this report are subject to varying interpretations. Hence, to avoid misunderstanding, their usage in this report has been defined and these definitions are included as a glossary.

CHAPTER 2

PREVIOUS COMMITTEES AND REPORTS

7. The Committee on Secondary Education has had important antecedents in the committees appointed in 1952, 1957 and 1961. This chapter is concerned with a review of the reports made by these committees and the progress which has been made in the implementation of their recommendations. Reference is also made to the report on the secondary school curriculum published by the Education Department in 1966.

The Committee on Secondary Education (1952-54)

8. In 1952, on the advice of the Director of Education (Dr T. L. Robertson), the then Minister for Education (the Hon. A. F. Watts) established a Departmental committee to prepare a plan for the re-organization of secondary education in Western Australia. This committee was chaired by the Superintendent of Secondary Education (Mr V. Box). At that time, secondary education was on the verge of a tremendous expansion, not only as a consequence of the post-war "population explosion", but also because of a rapidly changing social structure, characterized by a technological advancement hitherto unknown in this State. The committee presented its report[1] (1)to the Minister (by then, the Hon. W. Hegney) in 1954.

The Secondary Schools' Curriculum Committee (1957-58)

9. In 1957, the Secondary Schools' Curriculum Committee (Chairman—Dr T. L. Robertson) was appointed by the Minister for Education (the Hon. W. Hegney) to examine the curriculum for secondary schools in Western Australia. This committee was made up of representatives of the community as well as professional educators. Its composition was as follows:

Community Organizations	12	representatives
Teachers' Union	3	,,
University	3	,,
Non-Government Schools	3	,,
Churches	3	,,
Education Department	6	,,

(2:34)

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[1] Referred to as the 1954 Report.

They issued a report[2] (2) in 1958 which was presented as "an attempt to outline the general aims and areas which the committee feels should form the basis of a secondary schools' curriculum programme in this State" (2:1). The committee indicated that these recommendations were "concerned only with what may be called the basic requirements for secondary school students in the upper 85 per cent. of the secondary school population" (2:6). The proposals made in the 1958 Report have served as the basis for the construction of syllabuses in various subject areas since that time.

The Committee of Inquiry into Secondary Education (1962-63)

10. At the end of 1961 the Minister, who was again the Hon. A. F. Watts, approved a recommendation by the Director-General of Education (Dr T. L. Robertson) that the progress made in secondary education since 1954 should be reviewed. Consequently, the Committee of Inquiry was set up with the following composition:

Dr T. L. Robertson	Chairman
Parents and Citizens' Federation	2 representatives
Teachers' Union	2 ,,
Secondary School Principals	1 ,,
Secondary School Teachers	1 ,,
Education Department	5 ,,

(3:3)

This committee, which met during 1962 and 1963, invited comments from secondary school staffs, teachers' organizations and employers, and careful consideration was given to suggestions made. In their report[3] (3) published in 1963 the Committee of Inquiry was able to indicate that, of the eleven recommendations made in the 1954 Report, the following six had been implemented:

(1) That children completing the primary course transfer to high schools if possible; and that, in addition, all children who have not qualified by completing the primary course and whose thirteenth birthday occurs during the year be transferred to high schools, irrespective of attainment, so that they may have the advantage of a secondary school environment before they leave school.

(6) That in the metropolitan area high schools be co-educational and comprehensive in type with enrolments of 1,500 plus.

(7) That, in the country, high schools be co-educational and multilateral in type.

(8) That Secondary School Scholarships be abolished.

(10) That all new metropolitan high schools be situated in the outer suburbs.

(11) That high schools near city, Fremantle and Midland Junction business centres be removed to the suburbs as soon as possible

(3:11-12).

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[2] Referred to as the 1958 Report.

[3] Referred to as the Robertson Report.

The five recommendations which had not been implemented were subjected to further detailed investigation. Further comments were made in relation to the extension of the secondary course to six years, the establishment of a new board concerned with examining and the replacement of the Junior Examination by some other form of assessment and certification. The other two recommendations dealt with the establishment of junior colleges but the Committee of Inquiry could find insufficient justification for such institutions and considered them unsuitable for the population distribution at the time (3:12-14).

11. The Committee of Inquiry was appointed not only to review progress made in the implementation of the recommendations made in the 1954 Report, but also "to consider and make recommendations on future developments" (3:1). The following are the recommendations which were made in the Robertson Report:

(1) That an investigation be conducted to determine the most desirable point at which transfer from primary to secondary education should take place.

(2) That a research project, involving a limited number of Government and independent secondary schools be carried out to assess the practical implications of a cumulative certificate scheme.

(3) That action be taken to acquaint commerce and industry with the aims and intentions of the Department in introducing a cumulative certificate scheme.

(4) That the Leaving Certificate course should include, in addition to the courses already available, other courses of a broader educational nature to meet certain pre-vocational needs of students and to cater for their wide range of abilities and interests.

(5) That the terminal stage at present should be after five years of secondary education, making a total of twelve years of primary and secondary education, and that the length of secondary schooling should be kept constantly under review.

(6) That action be taken to form a small committee representing the University, the non-Government schools and the Education Department to discuss matriculation and related problems, including the question of a sixth year.

(7) That a scheme under which
  (i) the Leaving Certificate should be examined by one paper only in each subject; and
  (ii) in subjects selected for Matriculation an additional paper should be set,

be referred to the Committee proposed in (6).

(8) That the Government be asked to consider increasing its financial assistance to enable students to proceed to the second stage of their secondary education.

(9) That no high school should have an intake of more than ten first year classes.

(10) That an investigation be made into the operation of various forms of school organization and that a comprehensive review of their advantages and disadvantages be prepared.

(11) That the Department and the Teachers' Union should jointly consider the problem of staff changes in order that the needs of the school should be met without detriment to the interests of teachers.

(12) That in Class I secondary schools, a "bursar" and at least two typists should be appointed and that adequate clerical staff should be appointed also to smaller secondary schools.

(13) That the Minister consider the appointment of a Permanent Advisory Committee whose function would be to study the needs of the community and advise the Minister on developments necessary in the secondary system to cater for these needs.

(14) That a Board, tentatively called a Council of Secondary Studies, should be constituted to be responsible for such activities as curricula, examinations, accrediting of schools, and the award of scholarships.

(15) That, under the aegis of the Permanent Advisory Committee, separate committees be set up later to consider specific matters such as equipment and facilities, school design, equipment technicians, types of school organization, cumulative certification, and any other matter referred to them

(3:52-54).

12. A review of the progress which has been made to date in the implementation of these recommendations follows.

(1) Transfer from Primary to Secondary Schools

This matter has been investigated and our recommendations in regard to both the age of transfer and the process of transition are to be found in Chapter 7.

(2) and (3) The Cumulative Certificate Scheme

A research project was initiated in 1964 and is still functioning under the title of "The Achievement Certificate Project". A full report on the progress made to date is to be found in Chapter 3.

(4) New Leaving Certificate Courses

Some fourth year terminal courses have been introduced to provide pre-vocationally oriented courses for students with non-academic interests (see Chapter 3), but no progress appears to have been made in the introduction of "additional courses of a broader educational nature . . . to meet the interests, abilities and pre-vocational needs of students proceeding to careers in commerce, industry, nursing, etc." who are following courses leading to the Leaving Certificate. However, we have examined secondary courses generally and our recommendations are included in Chapter 5.

(5) Length of Secondary Schooling

This issue has been reviewed and our findings are reported in Chapter 7.

(6) and (7) Leaving and Matriculation

No special committee was constituted along the lines recommended. Nevertheless, new matriculation regulations have been introduced which are consistent with Recommendation 7.

(8) Financial Assistance to Students

Additional financial assistance has been made available to students attending non-Government schools through the State Government's tuition fee subsidy scheme. The introduction of the Commonwealth Secondary School Scholarships has also increased the financial assistance available to students.

(9) School Size

The present situation in relation to school size is described in Chapter 3.

(10) School Organization

Various forms of school organization have been investigated and our findings are reported in Chapter 6.

(11) Staff Changes

Representatives of the Department and the Teachers' Union have had discussions at various times on the means whereby staffing could be stabilized. The new regulations which have been introduced in relation to the promotion of principals represent a step in this direction.

(12) Clerical Staff

Additional clerical help has been made available to secondary schools in recent years. Bursars have been appointed to most of the largest high schools in addition to up to three clerical assistants.

(13) and (15) Permanent Advisory Committee

No such permanent advisory committee has been appointed. The Minister appears to have preferred to appoint special committees to advise him at regular intervals on developments necessary in secondary education. In this way it is possible to structure each committee to suit the particular task being undertaken.

(14) Council of Secondary Studies

No council of secondary studies as such has been appointed. However, the Achievement Certificate Central Council represents an exploratory move in this direction. Our recommendations in this regard are to be found in Chapter 8.

Report on the Secondary School Curriculum

13. The Committee of Inquiry did not consider curriculum matters in any way and made no recommendations in connection with subject content or subject organization (3:14). However, in 1966, the Education Department published a report[4] (4) on the secondary school curriculum which reviewed developments between 1958 and 1964. This report elaborated suggestions made to the Committee of Inquiry and supplemented the 1958 Report in the field of curriculum development. The suggestions made resulted from discussion with officers of the Research and Curriculum Branch and from the investigations of various committees. We have carefully considered the suggestions made in the Neal Report and Chapter 5 contains our recommendations in this area.

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[4] Referred to as the Neal Report.

CHAPTER 3

SECONDARY EDUCATION IN WESTERN AUSTRALIA AT PRESENT

14. In Western Australia, secondary education is offered over five years following seven years of primary education. The years are named in numerical succession: First Year, Second Year . . . Fifth Year. Normally, children turn thirteen in First Year, so that the point of entry to secondary education is at twelve-plus years. In 1968 there were 61,661 secondary students enrolled in both Government and non-Government schools. Seventy-five per cent. of these students were attending Government schools, sixteen per cent. Catholic schools and nine per cent. other non-Government schools. (See Figure 1.)

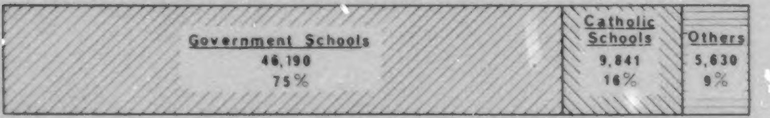


Figure 1

DISTRIBUTION OF SECONDARY SCHOOL STUDENTS
GOVERNMENT AND NON-GOVERNMENT (W.A. 1968)

Non-Government schools are responsible for a bigger percentage of students at the Fourth and Fifth Year level (39%) than at the level of the first three years (23%). (See Table 1.)

Enrolment Trends

15. Secondary enrolments have been increasing very rapidly since 1950 and it is predicted that this rapid rate of increase will continue into the 1970s. See *Table 2* and *Figure 2*. This increase is partly attributable to the increase in the population of the State but is also due to an increase in retention rates which is discussed later in this Chapter. (See paragraph 27.)

TABLE 1

DISTRIBUTION OF SECONDARY SCHOOL STUDENTS GOVERNMENT AND NON-GOVERNMENT (W.A. 1968)

	Government	Catholic	Other Non-Government	Total
First Year	14,818	3,017	1,224	19,059
Second Year	13,355	2,644	1,244	17,243
Third Year	11,734	2,369	1,324	15,427
Years 1-3, Total	39,907	8,030	3,792	51,729
Years 1-3, Percentage	77%	16%	7%	100%
Fourth Year	3,399	1,002	1,022	5,423
Fifth Year	2,362	809	816	3,987
Years 4-5, Total	5,761	1,811	1,838	9,410
Years 4-5, Percentage	61%	19%	20%	100%
Years 1-5, Total	46,190*	9,841	5,630	61,661
Years 1-5, Percentage	75%	16%	9%	100%

*Includes 522 children in special classes, not shown in enrolments of the five individual years, but not including 946 children in special schools.

16. Government schools are becoming responsible for an increasing share of the total secondary enrolments, as well as for an increasing proportion of Fourth and Fifth Year enrolments. (See Table 3 and Figure 3.) Nevertheless, enrolments in the non-Government schools have nearly trebled in the period 1950 to 1968, rising from 5,407 to 15,471.

Population Distribution

17. Western Australia has an area of nearly one million square miles and a population of 900,000. While more than half of the total population is located in the Perth metropolitan area and there is some concentration of population in the South-West, there remains a large sparsely populated area to be provided for. Table 4 shows that 30% of all secondary students (Government and non-Government) are enrolled in country schools. A more detailed analysis is given in Table 5, which shows the percentage of enrolments in each of the ten Statistical Divisions of the State.

TABLE 2

SECONDARY ENROLMENTS IN WESTERN AUSTRALIA ACTUAL (1949-68) AND PREDICTED (1969-73)

(Government and Non-Government Schools—at August each year)

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Special	Total	Increase
1949	6,933	4,502	2,423	716	642			
1950	7,941	4,719	2,666	766	663		16,755	1,417
1951	8,272	5,201	2,790	822	641		17,726	971
1952	8,534	5,795	2,961	837	647		18,774	1,048
1953	8,713	6,200	3,562	961	740		20,176	1,402
1954	9,678	6,389	3,746	1,094	842		21,749	1,573
1955	10,165	7,327	4,001	1,239	938		23,670	1,921
1956	10,642	7,951	4,869	1,409	1,094		25,965	2,295
1957	11,796	8,693	5,454	1,709	1,245		28,897	2,932
1958	11,729	9,918	6,158	1,932	1,532		31,269	2,372
1959	13,199	9,921	7,224	2,270	1,642		34,256	2,987
1960	14,997	11,337	7,339	2,682	1,899		38,254	3,998
1961	15,318	13,146	8,609	2,680	2,160	57	41,970	3,716
1962	15,505	13,592	10,211	3,350	2,131	257	45,046	3,076
1963	15,956	14,139	10,647	3,688	2,622	375	47,427	2,381
1964	16,666	14,719	11,241	3,992	2,895	458	49,971	2,544
1965	16,818	15,305	12,034	4,381	3,020	453	52,011	2,040
1966	17,412	16,022	13,003	4,774	3,341	501	55,053	3,042
1967	17,637	17,157	14,755	5,117	3,742	535	58,943	3,890
1968	19,059	17,243	15,427	5,423	3,987	522	61,661	2,718
*1969	19,500	18,780	15,640	5,830	4,230	560	64,540	2,879
*1970	20,320	19,360	17,120	6,000	4,560	590	67,950	3,410
*1971	20,750	20,300	17,760	6,630	4,690	620	70,750	2,800
*1972	21,970	20,790	18,750	6,970	5,170	650	74,300	3,550
*1973	23,200	22,050	19,310	7,460	5,440	680	78,140	3,840

* Predicted.

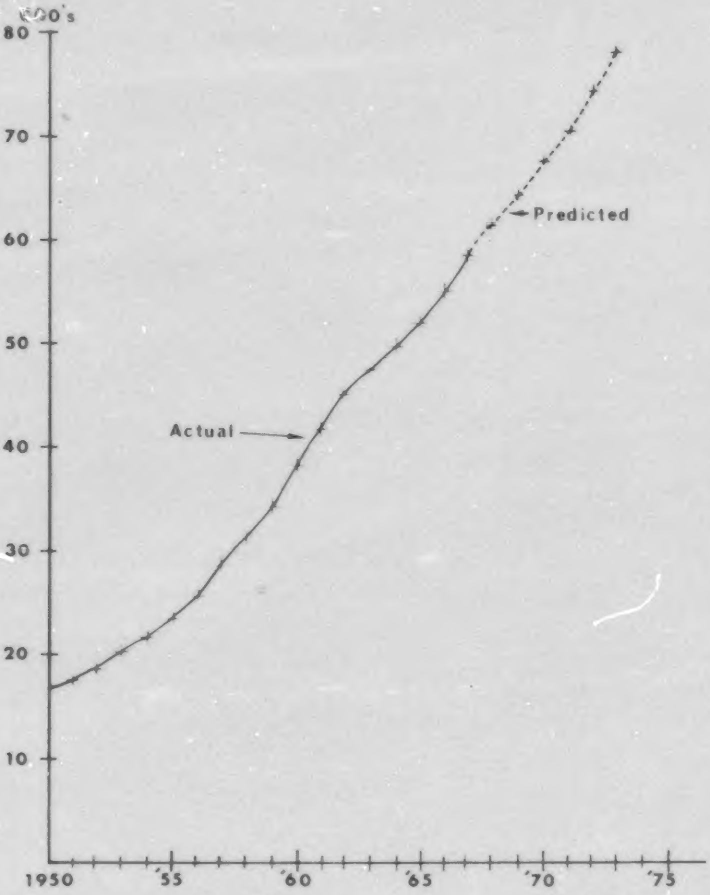


Figure 2

SECONDARY ENROLMENTS IN WESTERN AUSTRALIA
ACTUAL (1950-68) AND PREDICTED (1969-73)

(Government and Non-Government Schools—at August each year)

TABLE 3

PERCENTAGE OF STUDENTS IN GOVERNMENT SCHOOLS
(W.A., 1950-68)

Year	Percentage of Students in Government Schools		
	Years 1-3	Years 4-5	Total Secondary
1950	71	38	68
1951	72	36	69
1952	70	42	68
1953	71	42	68
1954	71	41	68
1955	71	46	69
1956	72	50	70
1957	73	50	70
1958	73	52	71
1959	74	54	71
1960	74	55	72
1961	75	55	73
1962	76	57	74
1963	76	58	74
1964	77	58	74
1965	77	60	74
1966	77	60	74
1967	77	61	75
1968	77	61	75

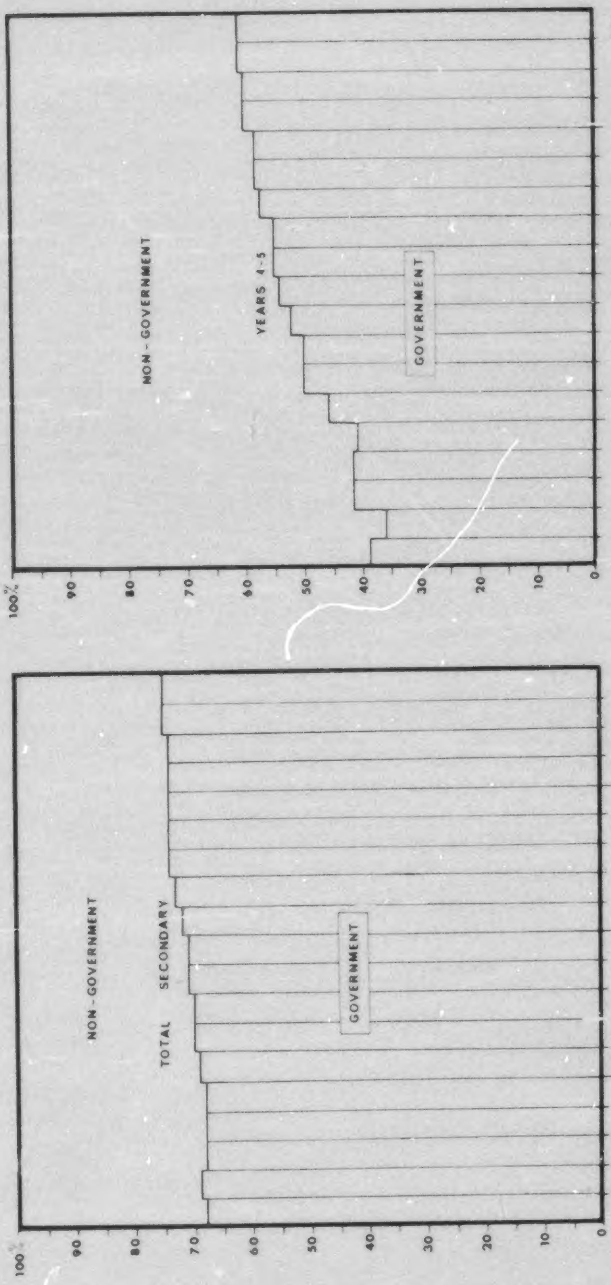


Figure 3

PERCENTAGE OF SECONDARY STUDENTS IN GOVERNMENT SCHOOLS

(*a*) Total Secondary, (*b*) Years 4-5 (W.A., 1950-68)

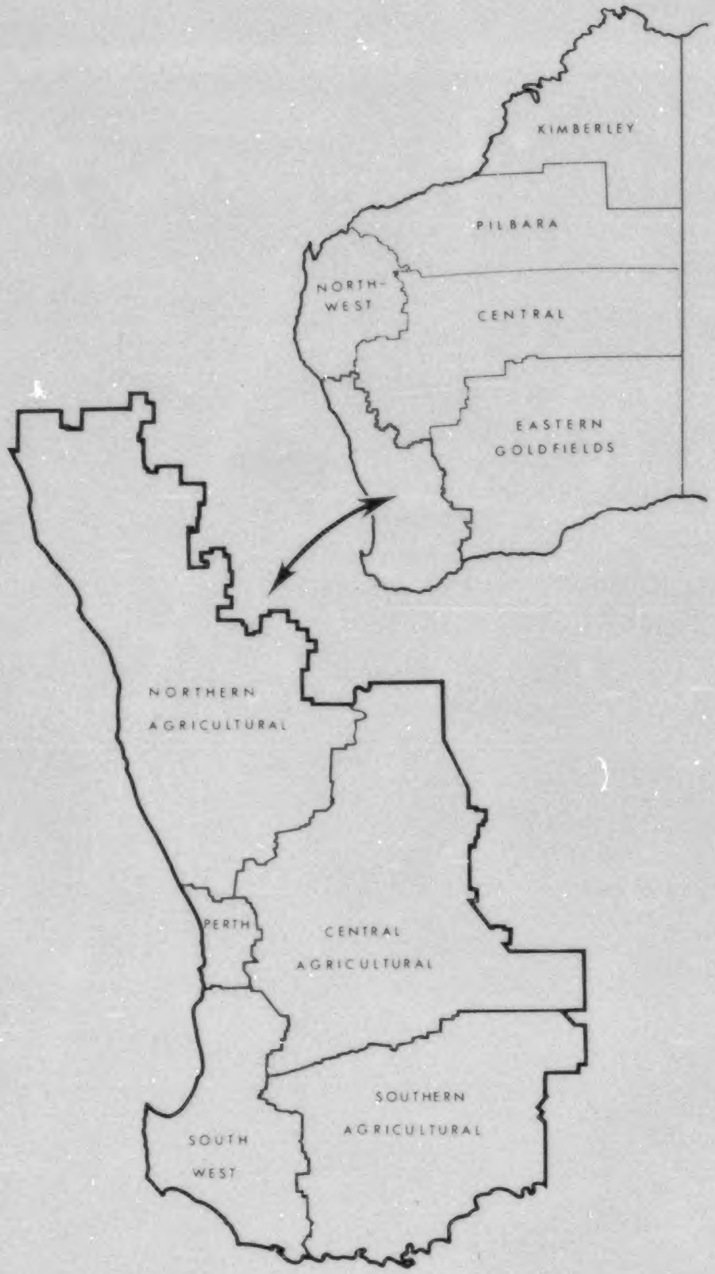
TABLE 4
DISTRIBUTION OF SECONDARY STUDENTS METRO/COUNTRY (W.A. 1968)

	Metropolitan*		Country		Whole State
	Enrolment	%	Enrolment	%	
Government	30,150	65·3	16,040	34·7	46,190
Non-Government	13,089	84·6	2,382	15·4	15,471
Total	43,239	70·0	18,422	30·0	61,661

* Metropolitan schools being defined according to Instruction 18.04 of the Education Department's "Teachers' Handbook and Administrative Instructions (Revised 1968)".

TABLE 5
DISTRIBUTION OF SECONDARY STUDENTS BY STATISTICAL DIVISION, GOVERNMENT AND NON-GOVERNMENT (W.A., 1968)

Statistical Divisions		% of Government	% of Non-Government	% of Students
1	Perth	65·5	84·6	70·3
2	South-West	10·3	4·3	8·8
3	Central Agricultural	7·6	1·0	6·0
4	Southern Agricultural	6·0	2·0	5·0
5	Northern Agricultural	3·8	5·4	4·2
6	Eastern Goldfields	3·5	2·3	3·2
7	Kimberley	0·6	—	0·4
8	North-West	0·6	0·3	0·5
9	Pilbara	0·4	—	0·5
10	Central	0·1	0·1	0·1
—	Correspondence	1·6	—	1·2


KIMBERLEY
PILBARA
NORTH-WEST
CENTRAL
EASTERN GOLDFIELDS
NORTHERN AGRICULTURAL
PERTH
CENTRAL AGRICULTURAL
SOUTH WEST
SOUTHERN AGRICULTURAL

Location of Schools Providing Secondary Education

18. Details as to the location of places offering secondary education, the secondary school population and the level of education are shown in Appendix 2. The levels of education provided in various types of educational institutions in the State are shown in Appendix 3. In a state characterized by this dispersal of population over very wide areas, even these liberal provisions are inadequate and numbers of secondary children need to be sent away from home for part or all of their secondary education. The Government recognizes this need and makes boarding allowances available for such children. Hence non-Government schools with boarding accommodation, and hostels associated with Government schools play a special role in making suitable secondary education available to country children. Boarding places available in member schools of the Association of Independent Secondary Schools number 3,507 for 1968 and it is estimated that 3,800 places will be available by 1971. Hostels under the control of the Country High Schools' Hostels Authority provide accommodation for 800 students (1968) attending Government schools in the country, and Swanleigh Hostel conducted by the Anglican Church accommodates 300 such students (1968) in the city. A further 300 students (1967) are accommodated in Government agricultural schools.

Establishment of Government Schools Providing Secondary Education

19. Government primary schools are established wherever a minimum average attendance of eight children can be maintained. School buses transport children to larger centres wherever practicable. Junior high schools are established where there is a minimum average attendance of 150 pupils with at least 25 of these at the secondary level. Special facilities such as science laboratories, and manual arts and home science centres are made available in these schools and some secondary teachers are appointed. In the smaller primary schools, secondary students generally follow the course provided by the W.A. Correspondence School. Students who are so located as to be unable to attend a school receive direct correspondence tuition from the Correspondence School. High schools may be established in localities where there is an average attendance of not less than 150 students in Years 1, 2 and 3. Senior high schools are the only schools which provide the full secondary course of five years and their establishment depends on factors such as the number of Fourth and Fifth Year students who would be enrolled, the distance from the nearest senior high school and the availability of qualified staff. Of the 46,190 secondary students enrolled in Government schools in 1968, 65% were attending senior high schools, 23% high schools, 9% junior high schools, 1% other primary schools and 2% were receiving correspondence tuition. (See Figure 4.)

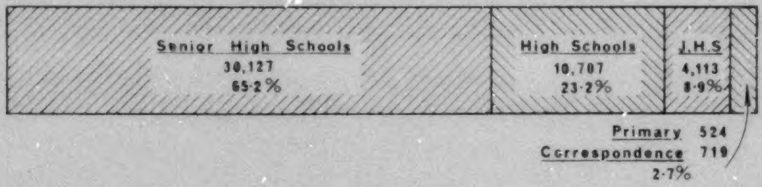


Figure 4
SECONDARY STUDENTS ENROLLED IN GOVERNMENT SCHOOLS BY TYPES (W.A., 1968)

Government Secondary Schools

20. Government secondary schools are non-selective, co-educational, comprehensive, district schools (See Glossary.) The policy that Government secondary schools should be of this type was recommended by the 1954 Committee. The statement of this policy and the rationale behind it was published in *The Education Circular* of December, 1958 (5:238-241). A recent innovation has been for schools to develop specialties and so to provide for individual interests and abilities which could not be provided for in all schools. For example, Perth Modern School which was once a selective and specialized academic high school is now a comprehensive school with music as a specialty. As well as providing general education for the children of the district, specialist facilities and staff are made available at this school for students exceptionally gifted in music. Since 1967, applications have been invited annually from interested students throughout the State and a selection made of those considered to have most potential. A background of musical studies is an advantage but not necessary. In 1967, 200 applications were received for the 57 places available. The students are required to undertake the full programme of general education at Perth Modern School in addition to their special studies in music. Instrumental lessons are given before school by leading musicians who are employed as part-time tutors. This supplements an enriched music programme provided by the music teachers on the staff of the school. A similar situation exists at Applecross Senior High School, where art has been introduced as a specialty. At Applecross, leading artists provide supplementary tuition on Saturday mornings. Attached to some secondary schools are agricultural wings which are residential and provide specialized courses in agriculture for approximately 300 boys. Students aged from 14 to 17 years are eligible for admission provided they have passed the seventh grade, but most have in fact passed Second Year. Preference is given to farmers' sons, but others are also admitted if physically fitted for farm work. The standard of work is post-primary in ordinary school subjects, but special attention is given to practical activities of use in farming.

Plate 1

A typical classroom scene in a Government comprehensive, co-educational high school (paragraph 20).

Plate 2

The woodwind section of Perth Modern School, which is a comprehensive senior high school with music as a specialty. There are brass and string sections also (paragraph 20).

Sizes of Government Secondary Schools

21. The sizes of Government secondary schools are shown in Table 6. Over the last six years there has been an increase from twelve to twenty-three in the number of schools with enrolments between 801 and 1,400, but practically no change in the numbers of small or very large schools. The average enrolment of the five largest schools decreased from 1,547 in 1962 to 1,470 in 1968. As a measure to control school size it was recommended in 1963 that "no high school should have an intake of more than ten first year classes" (3:42). Apart from one school with twelve First Year classes and six with an intake of eleven classes, in 1968 the other secondary schools had First Year intakes of ten classes or less. (See Table 7.)

TABLE 6
GOVERNMENT SECONDARY SCHOOLS—ENROLMENTS AND CLASSIFICATION (1962 AND 1968)

Year	Classification	Secondary Enrolments									
		101-200	201-300	301-400	401-600	601-800	801-1,000	1,001-1,200	1,201-1,400	Over 1,400	Total
1962	Senior High	—	—	2	2	3	2	1	2	5	17
,,	High	3	4	6	2	—	2	3	2	—	22
,,	Total	3	4	8	4	3	4	4	4	5	39
1968	Senior High	—	—	—	6	1	6	4	8	4	29
,,	High	—	4	4	4	2	3	2	—	—	19
,,	Total	—	4	4	10	3	9	6	8	4	48

TABLE 7
GOVERNMENT SECONDARY SCHOOLS—INTAKE OF FIRST YEAR CLASSES (1968)

No. of First Year Classes	No. of Schools	No. of First Year Classes	No. of Schools
1	—	7	1
2	1	8	4
3	3	9	9
4	5	10	7
5	5	11	6
6	6	12	1

Secondary Education in Non-Government Schools

22. Non-Government schools are generally church schools, each one exercising its independence to maintain its individual character. Twenty-five of the Five Year schools are boarding schools and draw their students from all parts of the State and from overseas. They could be described as comprehensive but there is considerable diversity among them, some being academically oriented with a wide range of subjects in the sciences and languages, others to the pre-vocational. The majority have limited their enrolment at secondary level to 600-700 on educational grounds (See Table 8.) Many of these schools have primary sections also and the total enrolments in four such schools exceeds 800, the actual enrolments being 817, 866, 935 and 1,043. The schools are generally not co-educational and they do of economic necessity charge fees which prevents certain sections of the community availing themselves of the type of education offered. One of the significant features of these schools is the use which is made of "out of school" time and the offering of a wide range of activities open to all students irrespective of their courses of study. These "out of school" activities are looked upon as a valuable educational instrument and cover music (including tuition in string and wind instruments and orchestral work under directors of music); art, pottery, silk screening and other

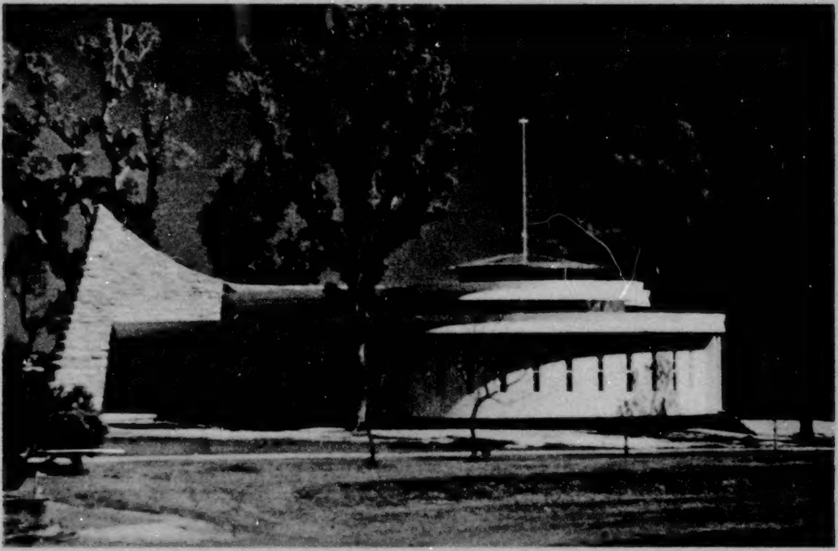


Plate 3

The school chapel at one of the larger non-Government secondary schools. All non-Government secondary schools in Western Australia have religious affiliations, and the chapel is the focal point of school life (paragraph 22).

crafts; mathematics workshops; dramatic societies and numerous clubs each answering the needs of some students. A second feature is "pastoral care". Over the past century house and tutorial systems have been developed and adapted to meet new circumstances. It is through the school chaplains, housemasters and tutors, who are members of the academic staff, that individual attention is given to each student. Pastoral care provides an element of continuity throughout a student's life at school and is made as unobtrusive as possible. A third feature is the ability to experiment and innovate freely and quickly. Not all schools avail themselves of this opportunity, but there are experiments in the teaching of foreign languages, the new mathematics at primary and secondary levels, extensive cross-grading, music, handwriting, sex education, outdoor training through exploration expeditions, and pastoral care, to name some.

TABLE 8

NON-GOVERNMENT SCHOOLS—SECONDARY ENROLMENTS (1968)

	Secondary Enrolments							
	1-100	101-200	201-300	301-400	401-600	601-800	801-1,000	Total
Schools with Secondary Students Only	5	6	3	3	1	—	—	18
Schools with Primary and Secondary Students	43	14	8	1	8	3	—	77

Compulsory Education

23. The period of compulsory education in Western Australia is from the age of six years to the end of the year in which a student turns fifteen. Most children start school at the beginning of the year in which they turn six, and while most stay at school until the end of the year in which they turn fifteen (96% in 1966), some exemptions are granted because of lack of progress at school, financial hardship affecting the family, or other reason. (See Appendix 4.)

Promotion Policies

24. The Department has adopted a policy of chronological promotion for all its schools. Hence most students commence their secondary schooling at the beginning of the year in which they turn thirteen. Some students spend eight years in primary classes but most of these are transferred to secondary classes, irrespective of attainment, for the year in which they turn fourteen (3:12). A survey conducted in the South-West District (Primary) in 1967 showed that 8% of pupils were one year over-age (see Glossary) and another 1% were two or more years over-age. (See

Table 9.) The presence of over-age students in a class may be attributed mostly to a late start at primary school, particularly of immature children born late in the year, and to non-promotion. When non-promotion occurs it is mostly at the end of Grade 1. The survey conducted by the Australian Council for Educational Research in 1957 found that 4% of the children in Western Australia spent more than one year in Grade 1. This was the lowest figure for Australia (6:14). It is very unusual in Government schools to find any under-age (see Glossary) children in a class. The implementation of this policy of chronological promotion is also evident from an examination of the data in Table 10, which shows only a small increase in average age through the primary grades and secondary years. The decrease in average age between Years 2 and 3 in Government schools probably reflects the fact that over-age students are those most likely to leave school.

TABLE 9

SURVEY OF OVER-AGE PUPILS IN GOVERNMENT SCHOOLS SOUTH-WEST DISTRICT (PRIMARY), 1967

	Total Enrolment	Pupils One Year Over-Age	Pupils Two or More Years Over-Age	Total Over-Age Pupils
Number	11,685	966	142	1,108
Percentage	100%	8·3%	1·2%	9·5%

TABLE 10

AVERAGE AGE IN EACH PRIMARY GRADE AND SECONDARY YEAR (W.A., 1968)

	Grade							Year				
	1	2	3	4	5	6	7	1	2	3	4	5
Government Schools	6·2	7·3	8·3	9·3	10·3	11·3	12·3	13·3	14·4	15·3	16·3	17·3
Non-Government	6·2	7·3	8·4	9·4	10·5	11·4	12·4	13·4	14·4	15·4	16·3	17·3

Note: Ages are shown in years and months as at 1st August.

Table 10 also indicates that the policy of chronological promotion has been accepted by the majority of non-Government schools, although it is likely that more variability exists among these schools, and interpretations are probably more flexible particularly in relation to accelerated promotion.

TABLE 11

SECONDARY RETENTION RATES AS PERCENTAGES OF FIRST YEAR REMAINING—GOVERNMENT AND NON-GOVERNMENT SCHOOLS (W.A., 1950-68)

	Percentage of First Year Remaining			
Year of Entry	One Year Later in Second Year	Two Years Later in Third Year	Three Years Later in Fourth Year	Four Years Later in Fifth Year
Government Schools				
1950	62·3 (1951)	29·6 (1952)	6·5 (1953)	5·6 (1954)
1951	67·5	35·6	7·6	6·8
1952	69·6	36·3	9·4	8·5
1953	70·3	39·2	10·9	9·4
1954	73·0	44·1	12·1	11·0
1955	76·7	48·2	13·3	11·7
1956	80·6	53·2	15·6	12·9
1957	83·7	56·9	16·9	13·4
1958	84·0	58·7	17·0	13·5
1959	85·0	61·1	19·4	14·7
1960	87·4	65·5	19·0	14·3
1961	88·6	66·8	20·4	14·6
1962	91·1	70·0	22·5	15·8
1963	91·7	72·3	23·8	17·7
1964	91·3	75·1	25·0	18·2 (1968)
1965	95·4	86·8	26·1 (1968)	
1966	98·9	87·2 (1968)		
1967	98·7 (1968)			
Non-Government Schools				
1950	74·6 (1951)	60·9 (1952)	28·7 (1953)	25·5 (1954)
1951	79·7	66·3	30·1	25·2
1952	81·3	65·4	29·1	24·9
1953	82·5	66·0	31·9	28·8
1954	83·4	68·2	33·8	24·9
1955	82·5	69·2	31·1	25·9
1956	84·8	64·2	34·8	32·4
1957	85·3	74·8	40·1	32·7
1958	86·2	74·1	40·1	32·0
1959	88·6	77·9	43·6	35·6
1960	88·4	76·5	42·5	35·3
1961	89·3	78·5	44·5	36·4
1962	91·5	80·9	47·7	40·9
1963	94·2	86·3	51·1	43·4
1964	93·8	89·5	51·0	44·3 (1968)
1965	94·8	90·9	53·6 (1968)	
1966	97·2	93·2 (1968)		
1967	94·8 (1968)			
Government and Non-Government Schools Combined				
1950	65·5 (1951)	37·3 (1952)	12·1 (1953)	10·6 (1954)
1951	70·1	43·1	13·2	11·3
1952	72·6	43·9	14·5	12·8
1953	73·3	45·9	16·2	14·3
1954	75·7	50·3	17·6	15·8
1955	78·2	53·6	19·0	16·2
1956	81·7	57·9	21·3	17·8
1957	84·1	61·2	22·7	18·3
1958	84·6	62·6	22·8	18·2
1959	85·9	65·2	25·4	19·9
1960	87·6	68·1	24·6	19·3
1961	88·7	69·5	26·1	19·7
1962	91·2	72·5	28·2	21·5
1963	92·2	65·4	29·9	23·5
1964	91·8	78·0	30·7	23·9 (1968)
1965	95·3	87·[illegible]	32·2 (1968)	
1966	98·5	88·6 (1968)		
1967	97·8 (1968)			

Age of Transfer into Secondary Classes

25. If the assumption were made that there were no over-age or under-age transfers the average age of students at the commencement of secondary education (1st February) would be 12 years 7 months. Over-age transfers probably cause the average age to be more of the order of 12 years 8 months.

Age of Transfer from Secondary to Tertiary Education

26. Students who complete five years of secondary education are not usually over-age, so the age at which most could be expected to commence tertiary education would be 17 years and 7 months (as at 1st February). However, some students spend a sixth year in secondary schools either to complete the entry requirements of the tertiary institutions or to broaden their education. This could result in an increase in the average age of commencement of tertiary education. This practice is probably more prevalent in non-Government schools.

Retention Rates and Trends

27. The retention rate to Third Year in 1968 was 89% and to Fifth Year 24%. (See Figure 5.) The increase in retention rate is to some extent a direct result of an increasing school leaving age and the implementation of the policy of chronological promotion. As can be seen in Figure 5 the Third Year retention rate must now be approaching saturation. The corresponding increases in Fourth Year (Table 11) and Fifth Year (Table 11 and Figure 5) reflect more definitely improved economic conditions and a growing awareness on the part of the community of the value of education. These increased retention rates may also be attributable to better and more readily available secondary school facilities and programmes.

School Organization

28. The usual pattern of organization of students for instructional purposes is for students in each year to be grouped according to general ability, or streamed, into classes each of which follows a common course although courses vary among classes after First Year. The initial basis for this grouping is usually some combination of the results of intelligence, reading and other tests with consideration being given to special reports supplied by the contributory primary schools. Some schools have been experimenting with cross-setting to enable students to be grouped according to specific abilities in some subjects. A description of one such experiment at South Fremantle High School is to be found in Appendix 5. This school is also representative of a number of schools which have adopted the house system to improve staff-student contact and a sense of belonging among students in large schools. The general objectives to be achieved and suggestions as to the organization of a house system are to be found in the Departmental publication *Personal and Group Relations and Spiritual and Moral Development* (7:13-16). "The Year System", which is another form of organization described in that publication, has also been tried in some schools but generally is less favourably regarded (7:16-17).

Student Teacher Ratio

29. The student teacher ratio in Government secondary schools in 1968 was 1906. There has been a steady decrease in this statistic since 1962. (See Figure 6 and Table 12.)

TABLE 12
SECONDARY STUDENT/TEACHER RATIO IN GOVERNMENT SCHOOLS
(W.A., 1962-68)

Year	Student/Teacher Ratio
1962	22·5
1963	21·9
1964	21·4
1965	20·8
1966	20·4
1967	20·3
1968	19·6

Note. All secondary staff actually in schools are included but not those on long service leave.

The Aims of Secondary Education in Western Australia

30. The Report of the 1957-58 Curriculum Committee is an outline of the general aims and areas which the Committee felt "should form the basis of a secondary schools' curriculum programme in this State" (2:1). They stated that "the basic aim of this programme is to provide the opportunity for girls and boys to develop as individuals and citizens whose attitudes and attainments enable them to live full lives, to contribute to society and to obtain employment satisfactory to themselves and their employers" (2:2-3). The aims which they identified were outlined under the following five areas "chosen as covering all aspects of the secondary curriculum" (2:9):

(1) Health and Physical Education.
(2) Intellectual Development and the Basic Skills.
(3) Personal and Group Relationships.
(4) Responsibility for Moral Choices.
(5) Environmental Factors and Forces.

31. The 1957-58 Committee was concerned mainly with the first three years of secondary education, but the 1962-63 Committee of Inquiry was referring to all levels of secondary education in stating: "The major function of the school is to give a sound general education to all students" (3:25).

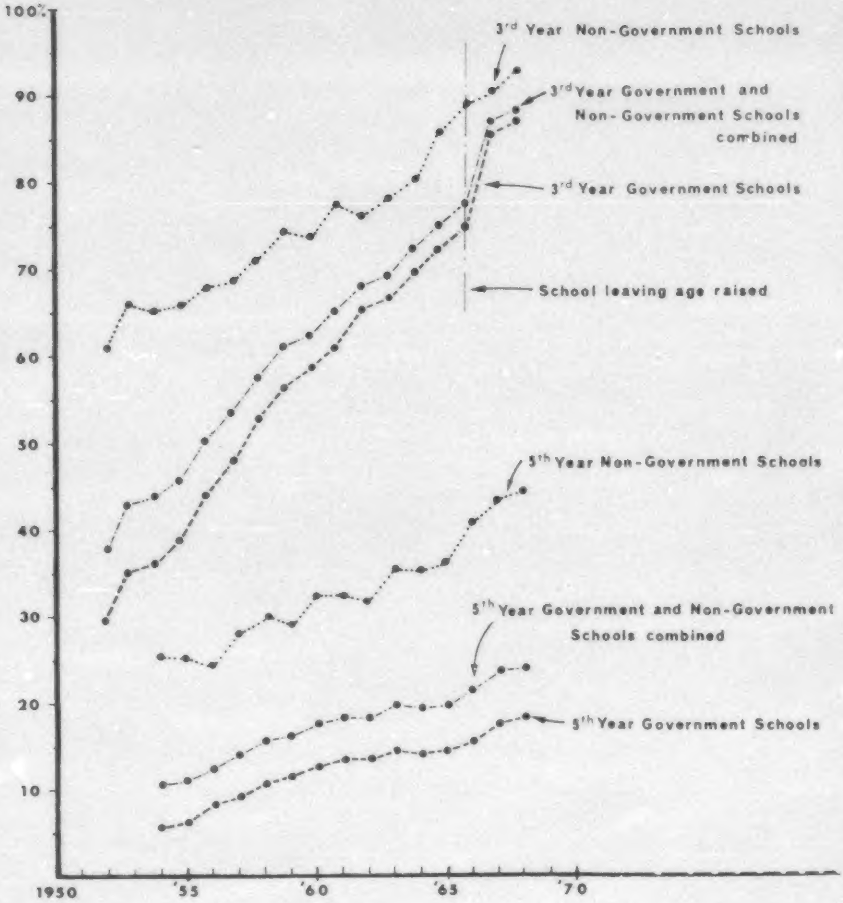


Figure 5

SECONDARY RETENTION RATES AS PERCENTAGES OF FIRST YEAR REMAINING—GOVERNMENT AND NON-GOVERNMENT SCHOOLS (W.A., 1950-68)

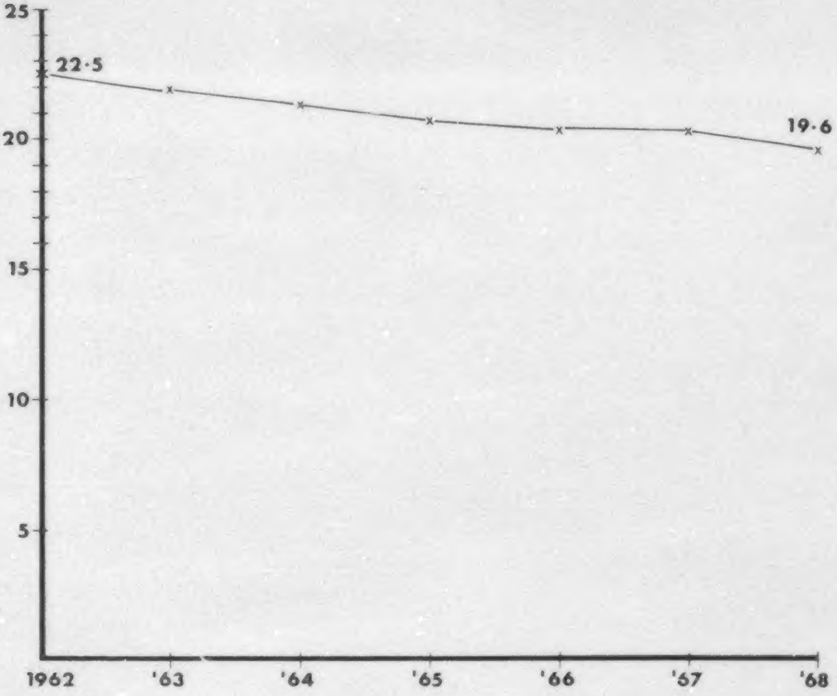


Figure 6

SECONDARY STUDENT/TEACHER RATIO IN GOVERNMENT SCHOOLS (W.A., 1962-68)

32. In relation to the aims of education in Australia, Shears has stated that while attention is paid to character and citizenship training "the main aim of schools has been to ensure that pupils pass the public examinations presented for the end of the various years of schooling" (8:209). The impact of the public examinations on secondary education in Western Australia was acknowledged in the Report of the 1957-58 Curriculum Committee when it stated:

> The requirements of public examinations have tended to dominate courses for all secondary students, both academic and non-academic, which means that the majority of secondary students are studying courses, many of which are unsuited to their needs since they were designed for the small percentage proceeding to the Leaving Certificate and the University (2:3).

Public Examinations

33. Public examinations in Western Australia are conducted by the Public Examinations Board of the University of Western Australia. Decisions of the Board other than those dealing with accrediting of schools, appointment of examiners, prescribing of books and award of prizes are subject to review by the Senate. The Board is chaired by the Head of the University Department of Education; other members include the Vice-Chancellor and seven other representatives of the University, the Director-General and five other representatives of the Education Department and six representatives of non-Government secondary schools (9:8-9). Examinations are set at two stages: the Junior taken by students at the end of Third Year and the Leaving taken by students at the end of Fifth Year. Subjects examined are shown in Tables 13 and 14. Art, Technical Drawing, Woodwork, Metalwork and Home Science have been approved as accredited subjects at the Junior level. Schools which wish to be accredited make application to the Public Examinations Board and are required to supply such information as may be required from time to time by the Accrediting Committee of the Board. These subjects are also externally examinable.

34. In 1967, 12,902 full-time students entered for the Junior Examination and 4,183 for the Leaving Examination (Appendix 6). The Junior entries represent 87% of the Third Year enrolment in the State or 77% of the age group. Full-time students attending technical schools cause the full-time Leaving entries to exceed the total secondary Fifth Year enrolment. In addition to full-time students there were 1,709 part-time Junior students and 2,247 part-time Leaving students. Full-time Leaving students represent 26% of the age group. Subject pass rates tend to be about 70% of the entry but vary somewhat between subjects and from time to time. (See Tables 13 and 14.)

35. The percentage of students studying a subject varies according to the traditional difficulty level of the subject. English is a required area of study in all schools and hence is taken by most students with the result that the percentage of an age group passing has progressively increased over the years. The same applies to other subjects such as Social Studies A and Science A which are taken by most students. With other subjects such as Mathematics III (Geometry and Trigonometry) the difficulty level has been kept high and students of average ability and below have been encouraged to take other subjects such as Elementary Mathematics specially introduced to cater for them. Traditionally, some subjects such as Physiology and Hygiene have been considered subjects for students of lesser ability or offered where facilities for the study of other subjects were limited.

36. Students who pass subjects at either the Junior or the Leaving level are awarded certificates which show subjects passed. At the Leaving level, subjects may be passed with distinction and this information is also shown on the certificate.

TABLE 13

JUNIOR EXAMINATION—ENTRIES AND PASSES

(Subjects with more than 500 entries, 1967)

Subject	Entries		Pass Rate	
	Number	% of Age Group	% of Entries	% of Age Group
English	13,269	79	78	62
French	2,243	13	82	11
History	1,508	9	72	6
Geography	1,522	9	66	6
Social Studies A	9,980	59	67	40
Social Studies B	5,642	33	74	24
Elementary Mathematics	4,468	27	58	16
Mathematics II (New)	828	5	80	4
Mathematics II (Old)	6,568	39	74	29
Mathematics III (New)	751	4	66	3
Mathematics III (Old)	6,009	36	65	23
Arithmetic	797	5	68	3
Physics	938	6	67	4
Chemistry	753	4	70	3
Biology	986	6	69	4
Science A	9,138	54	72	39
Science B	3,687	22	62	14
Art—External	3,451	20	83	17
Art—Accredited	1,410	8	91	7
Technical Drawing—External	2,263	13	80	10
Technical Drawing—Accredited	1,948	12	80	10
Commerce	2,264	13	86	11
Shorthand	1,753	10	73	7
Typewriting	3,847	23	80	18
Comm. Methods and Bookkeeping	1,513	9	78	7
Home Science—External	2,485	15	69	10
Home Science—Accredited	973	6	85	5
Woodwork—External	1,468	9	88	8
Woodwork—Accredited	1,218	7	87	6
Metalwork—External	1,143	7	84	6
Metalwork—Accredited	931	6	80	5
Music B	801	5	96	5
Speech and Drama	594	3	86	3
Scripture	2,222	13	69	9

Other Subjects Examined (Entries in brackets): Latin (355), German (346), Italian (342), Spanish (6), Mathematics I (307), Elementary Mathematics—New (340), Geology (51), Agricultural Science (90), Music A (54) and Physiology and Hygiene (239).

Age Group (1st Year, 1965): 16,818.

Source: Public Examination Board.

TABLE 14

LEAVING EXAMINATION—ENTRIES AND PASSES

(Subjects with more than 200 entries, 1967)

Subject	Entries		Pass Rate	
	Number	% of Age Group	% of Entries	% of Age Group
English	4,945	31	71	22
French	715	4	76	3
German	279	2	75	2
History	2,200	14	67	9
Geography	2,525	16	74	12
Economics	2,064	13	68	9
Mathematics I	1,069	7	59	4
Mathematics A	2,804	18	63	11
Mathematics B	2,210	14	69	10
Physics	2,274	14	61	9
Chemistry	1,694	11	82	9
Biology	1,921	12	67	8
Physiology and Hygiene	678	4	65	3
Art	663	4	94	4
Technical Drawing	725	5	83	4
Home Science	214	1	78	1
Accountancy	339	2	69	1
Stenography	337	2	67	1
Music	346	2	99	2

Other Subjects Examined (Entries in brackets): Greek (1), Latin (159), Italian (168), Spanish (2), Hebrew (3), Chemistry—Special Syllabus (182), Geology (86), Agricultural Science (41), Speech and Drama (181).

Age Group (1st Year, 1963): 15,956.

Source: Public Examinations Board.

Matriculation

37. In order to matriculate in 1968, candidates for the Leaving Examination must at one examination pass in English, and in not less than four other subjects chosen from at least three of the groups (ii), (iii), (iv) and (v).

(i) English.
(ii) French, German, Greek, Hebrew, Italian, Latin, Spanish or other language from time to time approved by the Board.
(iii) Geography, History, Economics.
(iv) Mathematics A, Mathematics B, Mathematics I, Music.
(v) Biology, Chemistry, Geology, Physics.

(9:15)

As from 1969 the following matriculation regulations will operate:

3. (1) The following subjects taken at the Leaving Examinations conducted by the University are approved for matriculation:
   - (*a*) English.
   - (*b*) *French, German, Greek, Italian, Latin*, Chinese, Dutch, Hebrew, Russian, Spanish or any other language from time to time approved by the Professorial Board.
   - (*c*) *Economics, English Literature, Geography, History, Music.*
   - (*d*) *Mathematics I, Mathematics II, Mathematics III.*
   - (*e*) *Biology, Chemistry, Geology, Physics.*

   (2) Examinations in the subjects shown in italics shall be set at two levels—a matriculation level and a leaving level—but not more than one paper shall be set at the matriculation level in any subject.

4. (1) In order to qualify for matriculation a candidate must pass
   - (i) at leaving level in English and four other subjects chosen from at least three of the groups (*b*), (*c*), (*d*) and (*e*) in Regulations 3 (1),

     and also,
   - (ii) at matriculation level in three of the four subjects other than English.

   Candidates must pass all the required subjects at leaving and matriculation levels in the same year or pass all the leaving level papers in the preceding year. . . .

   (2) A candidate may not take more than four subjects at matriculation level at the one examination.

(10:1-3)

TABLE 15 (See paragraph 38)

GRADE 7 COURSE FOR PRIMARY PUPILS IN GOVERNMENT SCHOOLS (W.A., 1968)

Subject	Minutes/Week*	Periods/Week**
English	580	15
Social Studies	275	7
Mathematics	210	5
Science	45	1
Health and Physical Education	170	4
Needlework or Craft	120	3
Art	60	2
Music	60	2
Special Religious Instruction	30	1
Total	1,550	40

*Source: Primary Curriculum—Introductory Booklet (11:13).

**Periods have been determined by diving the number of minutes by 40.

School Courses Leading to External Examinations

38. In none of the courses described below is the selection of subjects or the period allocation for subjects specified by the Public Examinations Board or the Education Department. While schools tend to conform to the patterns described, there is a great deal of variation from place to place. Students enter secondary school having followed in Grade 7 the course of study outlined in Table 15. In non-Government primary schools students are likely to have followed a similar course although more time would have been devoted to religious education.

39. **Secondary—Year 1.** Students in the first year of their secondary education in Government schools study the courses as shown in Table 16. In general the top

TABLE 16

FIRST YEAR COURSES FOR SECONDARY STUDENTS IN GOVERNMENT SCHOOLS (W.A., 1968)

Subject	Approximate Percentage of Age Group	
	30%	70%
	More Able Academically	Less Able Academically
English	6	8
Social Studies	6	6
Mathematics	6	6
Science	4	4
French	4	—
Manual Arts (boys) or Home Science (girls)	4	4
Art	2	2
Health Education	1	1
Physical Education	1	2
Sport	2	2
Music	1	2
Library	1	1
Spoken English	1	1
Form Room/Assembly	1	1
Special Religious Instruction	1	1
Total	41	41

third of students in terms of their general ability are provided with the opportunity to study French. Those not wishing to do so would have to exclude themselves from the top ability group. Manual Arts is usually restricted to boys and Home Science to girls. Otherwise, as can be seen from Table 16 in all other respects

TABLE 17

SECOND AND THIRD YEAR COURSES FOR SECONDARY STUDENTS IN GOVERNMENT SCHOOLS (W.A., 1968)

	Junior			H.S.C.
	Academic	General		
		Technical	Commercial	
Approximate % age of age group	30%	60-50%		10-20%
English*	6	7	7	4
Mathematics**	6	6	5	3
Science A*	4	4	4	3
Social Studies**	6	6	3	4
Art or Technical Drawing*	2	2	2	2
Library	1	1	1	1
Music	1	1	1	1
Health Education	1	1	1	1
Physical Education	1	1	1	2
Sport	2	2	2	2
Form/Assembly	1	1	1	1
French*	4	—	—	—
Science B*	3	—	—	—
Manual Arts or Home Science*	2	4	4	4
Manual Arts or Typing*	—	4	4	4
Commerce*	—	—	4	—
Pre-Vocational	—	—	—	8
Special Religious Instruction	1	1	1	1
Total Periods	41	41	41	41
Number of Junior Subjects	8-10	7-8	8	—

* A Junior subject. (Note: The Manual arts are woodwork and metalwork.)

** Either 1 or 2 Junior subjects:
The two mathematics units are Mathematics II and III;
The single mathematics unit is either Mathematics I or Elementary Mathematics;
The two social studies units are Social Studies A and Social Studies B.

the courses for all students are very similar. While First Year courses in non-Government schools tend to be much the same, there is considerable variety. Some would offer two languages, and all students would be given the opportunity to study at least one.

40. **Secondary—Years 2 and 3.** At the end of First Year, students are advised to follow either Academic Junior, or General Junior or High School Certificate courses such as those shown in Table 17. However, the final decision on courses remains with the parents, who are not compelled to accept the school's advice. Public Examinations Board regulations allow students to enter for only eight Junior Certificate subjects exclusive of Music, Speech and Scripture. Students in the academic stream are studying ten Junior subjects so they have to decide on two to be "non-examinable". Often these are Art or Technical Drawing and Manual Arts or Home Science. Some students prefer to reduce their academic load by dropping either French, one of the social studies, or Science B.

41. The course for students in the general stream differs from the academic course in that generally French and Science B are replaced by Woodwork and Metalwork, or Home Science and Typing. In addition, Mathematics I or Elementary Mathematics may replace Mathematics II and III, and only Social Studies A may be taken rather than Social Studies A and B. The commercial stream usually studies Commerce in place of Social Studies B. While it is usual for the most

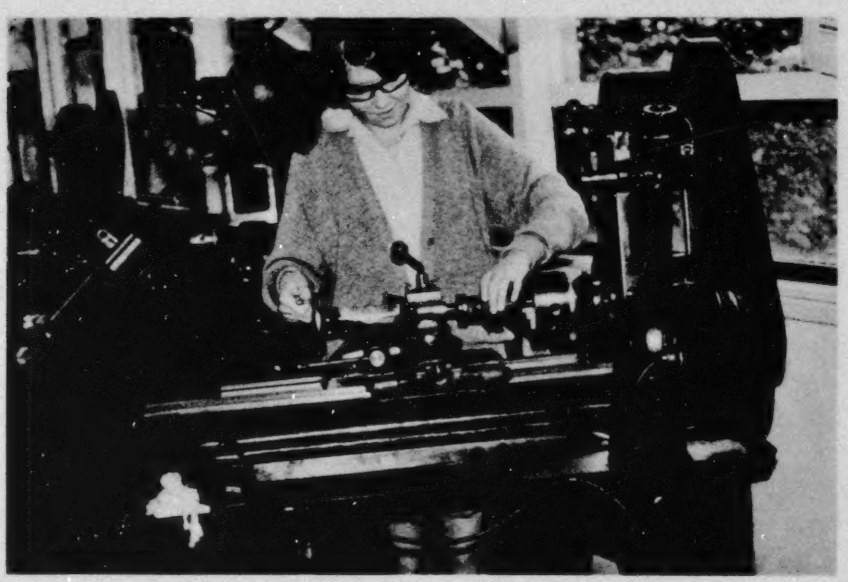


Plate 4

Preparing the lathe for polishing a copper dish. Until recently it would have been most unusual for a girl to be seen working in a manual arts workshop (paragraph 41).

capable students to follow the academic course, some elect to take the general course. This is particularly the case in relation to some girls taking the commercial course. Students unable to cope with the Junior courses are progressively streamed into High School Certificate courses which are not externally examinable. (See paragraphs 44-46.) As in First Year, Manual Arts is usually restricted to boys and Home Science to girls. Until recently it had been unusual for girls to study Technical Drawing, but a trend in this direction is becoming evident.

42. Second and Third Year courses in non-Government schools tend to differ from those in Government schools in the following respects: Physics, Chemistry, Biology, History and Geography have been retained in many instances, while Government schools have almost completely changed over to Science A, Science B, Social Studies A and Social Studies B, although there has been some trend in this direction, particularly in the Catholic Schools; courses such as Woodwork, Metalwork and Home Science tend to be less available; and there is more emphasis on religious instruction. (See Table 18.)

TABLE 18

SECOND AND THIRD YEAR COURSES IN AN INDEPENDENT SECONDARY SCHOOL (1968)

Subject	Periods/Week
Divinity	2
English	5
Mathematics	7
French or Art or Bookkeeping	4
Latin or Geography	4
German or History	4
Physics or Woodwork and Art*	4
Chemistry or Biology	4
Physical Education	2
Games	3
Tutorial	1
Total	40

* In this particular school Woodwork and Technical Drawing classes are conducted in the afternoon after school.

43. **Secondary—Years 4 and 5.** Students in Government secondary schools generally study a selection of seven Leaving subjects in Fourth and Fifth Years. Six periods are usually allocated to English and five periods to each of the other

TABLE 19

FOURTH YEAR COURSES IN A GOVERNMENT SECONDARY SCHOOL (W.A., 1968)

Course Group	Subjects	Classes	Periods
A (9 possible courses)	English	3	6
	Mathematics II	3	5
	Mathematics III	3	5
	Physics	3	5
	Chemistry	3	5
	French or German or Economics	3	5
	English Literature or History or Geography	3	5
	Sport, etc.	—	5
B (6 possible courses)	English	2	6
	Mathematics II	2	5
	Mathematics III	2	5
	Physics	2	5
	Chemistry	2	5
	Economics or Geography	2	5
	Art or Technical Drawing or Home Science	3	4
	Sport, etc.	—	6
C (8 possible courses)	English	2	5
	Mathematics I	2	5
	Biology	2	5
	French	2	5
	German or Economics	2	5
	Chemistry or History	2	5
	Geography or English Literature	2	5
	Sport, etc.	—	5
D (6 possible courses)	English	2	6
	Mathematics I	2	5
	Biology	2	5
	Geography	2	5
	Economics	2	5
	History or Physiology and Hygiene	3	5
	Art or Technical Drawing or Home Science	3	4
	Sport, etc.	—	6

subjects. The remaining five periods are devoted to Sport (2), Special Religious Instruction (1), Form/Assembly (1) and Physical Education. As from 1969, students in Fifth Year will study only six Leaving subjects with six periods per subject. The course offerings shown in Table 19 are typical of the pattern now

TABLE 20
FIFTH YEAR COURSES IN A GOVERNMENT SECONDARY SCHOOL (W.A., 1968)

Group	Subject Choice	Periods
1	English	6
2	Mathematics II, Mathematics I, Biology	6
3	Mathematics III, Physics, Biology, Geography, Literature, Mathematics I	6
4	Physics, Chemistry, French, Economics, Geography	6
5	Chemistry, Literature, History, Geography, Art, Technical Drawing, Home Science, Physiology and Hygiene	6
6	French, German, Economics, Literature, History, Geography	6
—	Sport, etc.	5

TABLE 21
FOURTH AND FIFTH YEAR COURSES IN AN INDEPENDENT SECONDARY SCHOOL (W.A., 1968)

Subject	Periods
English	6
Mathematics II or Mathematics I	6
Mathematics III or Biology or Geology or French or Economics or Geography	6
Physics or Chemistry or Economics or History or Art	6
Chemistry or Physics or Geography or English Literature or Biology	6
French or German or Accountancy or History or Geography or Latin	6
Divinity	1
Tutorial	1
Physical Education	1
Lectures and Current Affairs	1
Total	40

Note: Of the six periods allocated to each Leaving subject one is devoted to directed and supervised study in the library.

adopted by Government high schools for Fourth Year students. The course groupings are arranged so that students may drop any subject in Fifth Year when subjects are cross-set in six groups as shown in Table 20. In non-Government schools it is usual for students to study six subjects in both Fourth and Fifth Years as shown in Table 21.

The High School Certificate

44. High School Certificate courses were first introduced to Government Schools in 1951. Schools were left largely to their own resources to devise appropriate courses, which had to be approved by a secondary superintendent, although some syllabus outlines were made available by the Department. The courses tended to be "watered-down" academic courses and were slow in gaining acceptance. In 1958 only 500 students were enrolled throughout the State. The rapidly increasing retention rates of recent years (see paragraph 27) have, however, increased the pressure for more appropriate courses and the Department has provided more help for schools by way of revised syllabuses for subjects already being taught and through the introduction of more courses with a pre-vocational bias. The more general acceptance of the courses that has resulted is shown by the figures presented in Table 22. Students identified as being in the lower 20% in terms of general

Plate 5

These High School Certificate students are learning how to lay cement blocks, which they made themselves. This is one of the activities in the Home Handyman pre-vocational course (paragraph 44).

academic ability were probably in a High School Certificate class when they left school in 1967; a number of these would have left school before completing their third year and would not have qualified for a certificate.

45. High School Certificates are awarded on the basis of a full consideration of the student's school record and his results on final internal examinations set and marked by class teachers. All question papers and students' worked papers have to be made available to superintendents when they visit schools to consult with the principal and his staff in determining the subjects to be shown on each student's certificate. In 1961 the Director-General approved of the extension of High School Certificate courses to non-Government schools.

TABLE 22

STUDENTS IN HIGH SCHOOL CERTIFICATE CLASSES IN GOVERNMENT SCHOOLS (W.A., 1967)

	Second Year			Third Year		
	Total Students	H.S.C. Students		Total Students	H.S.C. Students	
		No.	%		No.	%
Senior High Schools						
Boys	4,230	690		3,868	459	
Girls	3,822	622		3,555	496	
Total	8,052	1,312	16%	7,423	955	13%
High Schools						
Boys	1,883	347		1,341	261	
Girls	1,721	286		1,205	199	
Total	3,604	633	18%	2,546	415	16%
Junior High Schools						
Boys	721	158		471	90	
Girls	640	120		434	67	
Total	1,361	278	20%	905	157	17%
All Schools						
Boys	6,834	1,195		5,680	765	
Girls	6,183	1,028		5,194	762	
Total	13,017	2,223	17%	10,874	1,527	14%

46. The present High School Certificate courses have been planned as a total educational experience for the less able students, who probably make up some 20-30% of the high school population. Students commence these courses at Second Year level, having undertaken a First Year course which, although having common subjects and time allocations with the rest of the First Year intake, is progressively modified as to depth and method of treatment. Subjects studied and period allocations are shown in Table 17. A detailed description of the course is to be found in Appendix 7.

Fourth Year Terminal Courses

47. The increasing retention rate at Fourth Year level (see Table 11) has led to the establishment of courses terminating at Fourth Year level and alternative to those leading to the Leaving Certificate. At the present time, most of these terminal courses have a commercial bias and are taken mainly by girls. An outline of such a course is shown in Table 23.

TABLE 23
A FOURTH YEAR TERMINAL COMMERCE COURSE

Subject	Periods
English	7
Shorthand	6
Typing	8
Bookkeeping	4
Art	3
Home Science	4
Sport	2
Physical Education	1
Special Religious Instruction	1
Music	1
Library	1
Form Room/Assembly	1
Health Education	2
Total	41

Work Experience

48. Work experience, a recent innovation in Government Schools, enables students to obtain first-hand experience of possible future occupations. At least five schools had introduced such projects by 1966. There are two approaches. In one, students work a full day or part of a day each week; and in the other, they are employed for a full week at a time. The work experience project conducted

Plate 6

These illustrations show students in work experience situations (paragraph 47).

by Belmont Senior High School in June, 1968, in conjunction with Belmont Rotary Club, is an example of the second approach. All students from the Third Year High School Certificate class participated. Fifteen boys and eleven girls were employed for a week on the jobs listed below and received an average wage of $11.

Boys
Cabinet making—furniture factory
Storeman/dispatch—plywood distributor
Factory hand/delivery—laundry service
Fettling—diecasting factory
Metal machining—general engineering works
Bowser attendant/lube attendant—service station
Motor body building—body works
Sheetmetal working—sheet metal fabricators
Battery building—battery factory
Butcher—retail butcher shop
Electrical maintenance—industrial electrical service
Storeman—paint manufacturer
Process worker/storeman—aluminium extrusion plant
Motor mechanic—stationary engine distributor

Girls
General office work—steel distributor
General office work—cement tile manufacturer
General office work—machinery firm
Book-binding—printing firm
Shop assistant—chemists
Shop assistant—drapers
Shop assistant—chain store
Telephonist/receptionist—vehicle distributor
Factory hand—chicken hatchery

The teacher in charge of the Belmont Pre-Vocational Centre made the following concluding comments in his report on this work experience project.

> Work experience serves a useful purpose in preparing high school students for employment. The main requirements for success are an active "service" club prepared to find co-operative employers, and teaching personnel sufficiently interested to organize the scheme from the school end. Both of these requirements are available at present and whilst these conditions prevail it is recommended that the scheme be conducted once per term.

49. A more detailed description of a similar approach used at Kent Street Senior High School in 1966 is to be found in *Education*, July 1966 (12). Work experience is supplemented in many schools by a programme of industrial visits to acquaint students with other activities than those in which they obtain work experience.

The Achievement Certificate Project

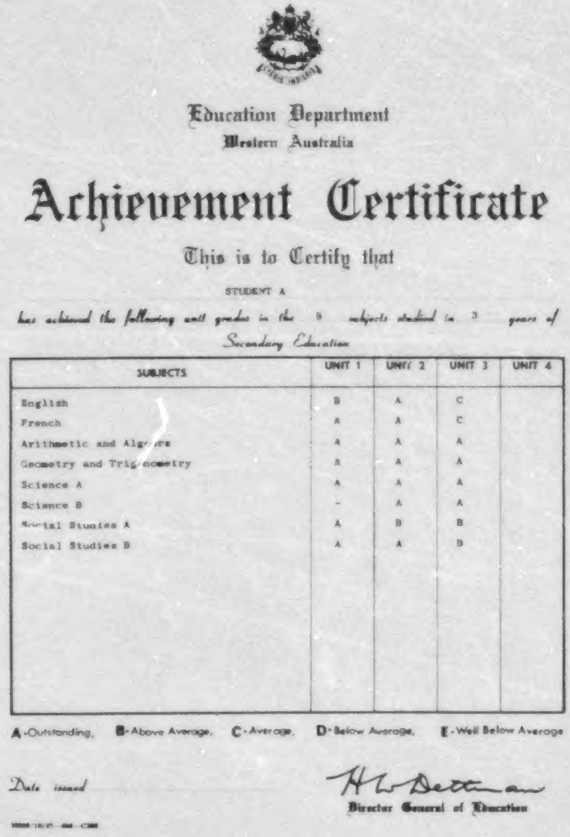
50. **Background.** As already mentioned in Chapter 2, one of the recommendations of the Committee of Inquiry, 1962-63, was that "a research project involving a limited number of Government and independent secondary schools be carried out to assess the practical implications of a cumulative certificate scheme" (3:23). The recommendation arose out of discontent with the existing external examinations. The reasons for this discontent and the proposals advocated by some members of the committee to replace the Junior Certificate by a Cumulative Certificate are to be found in Chapter 6 of their report (3:19-23). Some misgivings were expressed in submissions from the Teachers' Union, which favoured the retention of the Junior and Leaving Certificates as "external and impersonal measures of achievement" (3:22). Although the members of the Committee of Inquiry "appreciated the educational advantages" of the Cumulative Certificate proposals and expressed concern over "the practical problems associated with introducing such a scheme into schools, the majority were in favour of abolishing the Junior Certificate altogether and replacing it with a certificate showing the student's cumulative record of achievement" (3:22). A few members advocated an immediate change but others preferred a gradual changeover after a period of trial during which both forms of certification would be available.

51. In 1964 the Cumulative Certificate Research Project was initiated in four Government secondary schools—Applecross Senior High, Bunbury Senior High, Busselton Senior High and John Forrest High. In 1966 the name of the project was changed to "Achievement Certificate" to identify it with the name accepted for the certificate to be awarded when a student left school. The name "Cumulative Certificate" was not considered appropriate because it was the student's record that was cumulative not his certificate. Developments to date have been mainly in the areas of assessment and school organization.

52. **Assessment.** Under the Achievement Certificate scheme as it now operates, the assessment of a student is based on a cumulative record of achievement maintained in the school rather than being made as the result of a single, terminal, external examination. Because of this, Achievement Certificates may be awarded whenever a student leaves school, not solely at the end of Third Year as is the case with the Junior Certificate. A standardized system of grading based on an equal interval scale in terms of achievement has been adopted. Students who perform in the top 7% of a group taking a course are awarded A's, the next 24% B's, the next 38% C's, the next 24% D's and the remaining 7% E's. The reference group is the total State population taking the subject but many schools have found this interpretation difficult because adequate standardized tests have not been available. In some schools the I.Q. distribution for the school has been used as a useful guide for grade distributions. Familiarity with Junior Certificate standards has been helpful to experienced teachers who have been able to equate 50% at the Junior level with the bottom cut-off for C passes. Some progress has been made

with efforts to help schools in this regard. In English, samples of written expression assessed as A, B, C, D and E at the end of First Year have been made available to schools to serve as a reference standard. In Science, multiple forms of objective tests have been prepared for some of the topics in First Year, and it is anticipated that all First Year topic tests will be completed by the end of 1968 and for Second and Third Year by 1971. Unit tests covering a year's work are also planned. The use of machine-scoreable answer sheets has facilitated not only the marking of these tests but also the statistical analysis of the results, including the determination of item difficulty and reliability.

53. **The Certificate.** The Achievement Certificate awarded to a student records a more detailed account of a student's achievement than does his Junior Certificate. Figures 7*a* and 7*b* show Achievement Certificates awarded to two students whose



Education Department
Western Australia

Achievement Certificate

This is to Certify that

STUDENT A

has achieved the following unit grades in the 8 *subjects studied in* 3 *years of Secondary Education*

SUBJECTS	UNIT 1	UNIT 2	UNIT 3	UNIT 4
English	B	A	C	
French	A	A	C	
Arithmetic and Algebra	A	A	A	
Geometry and Trigonometry	A	A	A	
Science A	A	A	A	
Science B	-	A	A	
Social Studies A	A	B	B	
Social Studies B	A	A	B	

A - Outstanding, B - Above Average, C - Average, D - Below Average, E - Well Below Average

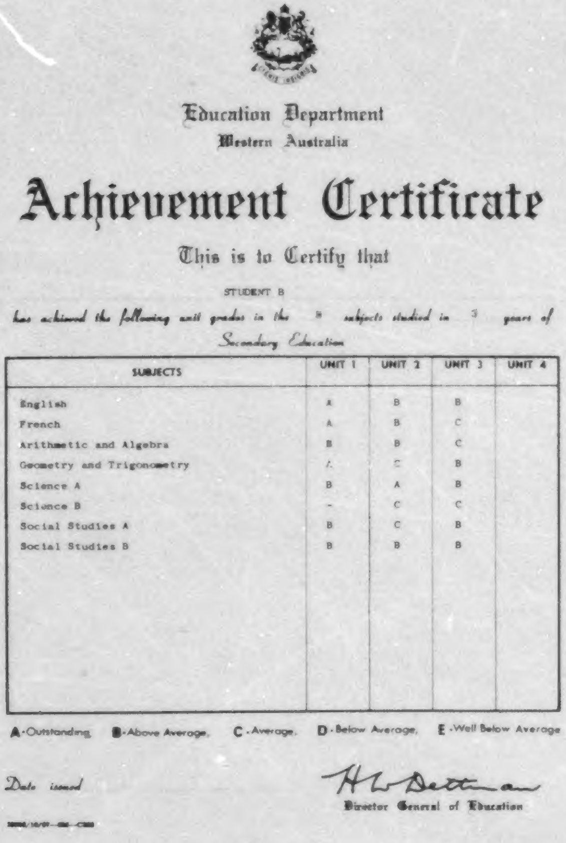
Date issued

H W Dettman
Director General of Education

Figure 7*a*

Junior Certificates were identical in that both showed passes in the same eight subjects. The Achievement Certificates show significant differences between the two students. Student A obtained 17 A's, 4 B's and2 C's, in his three years at school and is presumably a better student in general terms than Student B who obtained 4 A's, 13 B's and 6 C's. At the same time they show that Student B performed better in the third unit in English. Within the Achievement Certificate scheme a unit is defined as being a year's work in a subject for the average student. As can be seen on the certificates, provision is made for more capable students to complete more than three units. In practice this has not happened.

54. **School Organization.** In maintaining cumulative records of student achievement, schools have developed new procedures for recording and reporting. Associated with the Achievement Certificate project also, there has been a good deal of experimentation in cross-setting.



Education Department
Western Australia

Achievement Certificate

This is to Certify that

STUDENT B

has achieved the following unit grades in the 8 subjects studied in 3 years of Secondary Education

SUBJECTS	UNIT 1	UNIT 2	UNIT 3	UNIT 4
English	A	B	B	
French	A	B	C	
Arithmetic and Algebra	B	B	C	
Geometry and Trigonometry	A	C	B	
Science A	B	A	B	
Science B	-	C	C	
Social Studies A	B	C	B	
Social Studies B	B	B	B	

A-Outstanding, **B**-Above Average, **C**-Average, **D**-Below Average, **E**-Well Below Average

Date issued

H W Dettman
Director General of Education

Figure 7*b*

55. **The Regional Councils.** At present all Government secondary schools except two have elected to become involved in the Achievement Certificate project. There are six Regional Councils coinciding with the six secondary education districts. Each Council is chaired by the District Superintendent (Secondary) and the other members are the principals of the Achievement Certificate schools in the district. Each Regional Council supervises the Administration of the Achievement Certificate in its region and may initiate recommendations to the Central Council, which acts in an advisory capacity to the Director of Secondary Education.

56. **The Central Council.** The Central Council comprises the following members and has the power to co-opt other members:

Director of Secondary Education (Chairman)
Director of Special Services
Superintendent of Curriculum
Representative of the Teachers' Union
A representative of each of the six Regional Councils (to be a principal)
Representative of the Secondary Superintendents' Panel
Representative of Independent Schools
Representative of Catholic Schools
Executive Officer
Secretary

57. **The Subject Syllabus Committees.** The Central Council has appointed the following subject syllabus committees under the supervision of the Superintendent of Curriculum who represents all syllabus committees on the Central Council: English, Mathematics, Science, Social Studies, Manual Arts, Home Science, Art and Foreign Languages. Each subject syllabus committee is composed as follows:

Subject Superintendent (Chairman)
Subject Curriculum Officer (Secretary)
Superintendent of Curriculum
Representative of Teaching Assistants
Representative of High School Certificate
Representative of Secondary Teachers' College
Representative of Teachers' Union
Representative of Independent Schools

These committees also have the power to co-opt.

58. The responsibilities of each of these committees relate to the syllabus in the particular subject including, specifically, evaluation procedures and such other matters as are referred to them by the Central Council. Recommendations of the subject syllabus committees are tried out experimentally in selected schools under the supervision of the Superintendent of Curriculum, but must be approved by the Central Council before being adopted generally and issued to schools.

59. **Progress to Date.** Real progress has been made in assessment and school organization, but the potential advantages in relation to curricula and methods as envisaged in the Neal Report have not been realized to any appreciable extent. Students have continued to take the external examinations and, because of this, courses are still dominated by the requirements of the Public Examination

Board syllabuses. It had been hoped that the Achievement Certificate proposals as stated in the Neal Report would enable secondary education to be directed towards the implementation of the aims for secondary education as outlined in the 1958 Report. Goodwin Watson states that, "If there is a discrepancy between the real objectives and the tests used to measure achievement, the latter will become the main influence upon choice of subject matter and method" (13:22). This statement is directly applicable to the situation in Western Australia at present. This may not have been the case if a joint approach (Government and non-Government) had been made to the Public Examinations Board for "the acceptance of the cumulative unit scheme as satisfying the Junior Certificate requirements" as recommended in the Neal Report (4:31). However, such an approach has been made recently and has been approved in principle by the Public Examinations Board. (See Appendix 8.) Other difficulties have also arisen in relation to the implementation of the original Achievement Certificate proposals. Major organizational problems were encountered in relation to streaming students into course groups when they had been progressing at different rates. Also, teachers have expressed concern at the "greatly increased responsibilities for all staff members" (14:28). Another difficulty which arises, perhaps out of those stated above, is the limited involvement of non-Government schools in the project up to the present time. The latest proposals (Appendix 8) offer more promise and are discussed in Chapter 5.

PART II—SECONDARY EDUCATION FOR THE 'SEVENTIES

CHAPTER 4

AIMS

60. We have re-examined the aims as outlined in the 1958 Report and find that by and large they retain their relevance today. However, we are disturbed to find that little progress has been made in their implementation. We have identified two factors which could have contributed to this situation. In the first place, the aims may be too generalized to serve as a guide to action for teachers concerned with specific subjects; and secondly, high school teaching has continued to be dominated by the requirements of external examinations. The former point will be examined in Chapter 5, and a detailed study of the implications of the latter is to be found in Chapter 8 of this report.

61. While, as we have already stated, we agree with much of the 1958 Report, it was directed towards the upper 85% of the population and concerned with only the first three years of secondary education. Also, significant developments affecting education have occurred during the last decade. These have included, in particular, a changing world of work and the explosion of knowledge. Other factors recognized as of increased significance today are the impact of mass media and the importance of mental health. Hence, we believe that the time is opportune for the aims of secondary education to be restated as applicable to all students for the whole of their secondary schooling.

Education, Culture and Change

62. The major purpose of education is the transmission of culture from one generation to the next. A feature of our society is its mutability: we believe this to be one of its great strengths in that potential for change provides the possibility for improvement. This potential can only be realized if correct decisions are taken by citizens in our democratic society. The purpose of education then is not merely to transmit culture but to equip students for future decision-making which will improve society. This ability to make value judgments may be developed through

the study of our own and other societies. The potential danger that this may widen the range of tolerated behaviour and ideas within our own society far enough to affect the consensus of values on which social control and integration must rest has been pointed out by Professor Berndt as a risk we must take (15:12). The alternative, a citizenry ill-equipped for decision-making in democratic society, appears to us to be a graver danger. While accepting the desirability of a critical attitude towards established codes of social and personal behaviour, we recognize the importance to society and hence to its individual members of the acceptance of established values.

The Changing World of Work

63. Venn argues that "as a technological economy expands the largest increase in jobs will occur in occupations that require the most education and training" (16:18). The figures presented in Table 24 support his argument, in that since 1900 in the United States there has been a substantial increase in the percentage of

TABLE 24

MAJOR OCCUPATIONAL GROUPS AS A PERCENTAGE OF THE TOTAL LABOUR FORCE

(United States—Representative Years)

Occupational Group	% of Labour Force				Median Years of Schooling (1962)
	1900	1947	1960	1975*	
White-Collar Workers					
Professional and technical	4·3	6·6	11·2	14·2	16·2
Managers and proprietors	5·8	10·0	10·6	10·7	12·5
Clerical workers	3·0	12·4	14·7	16·2	12·5
Sales personnel	4·5	5·9	6·6	6·7	12·5
Total White-Collar Workers	17·6	34·9	43·1	47·8	—
Blue-Collar Workers					
Craftsmen and foremen	10·5	13·4	12·8	12·8	11·2
Semi-skilled operatives	12·8	21·2	18·0	16·3	10·1
Labourers	12·5	6·1	5·5	4·3	8·9
Total Blue-Collar Workers	35·8	40·7	36·3	33·4	—
Service Workers	9·0	10·4	12·5	14·3	
Farm Workers	37·6	14·0	8·1	4·5	
Total	100·0	100·0	100·0	100·0	—

Source: Grant Venn, *Man, Education and Work* (16:8 and 15)

*Predicted.

white-collar workers in the labour force and these are the jobs requiring most education. Skilled tradesmen and semi-skilled operators with their manipulative skills assumed dominance in the work force when steam and electric power took over from muscle power as a result of the industrial revolution. This group appears to have reached its highest proportion and has begun to decline, but the most drastic reductions have occurred in the number of jobs available for farm workers.

64. Venn predicts a continuation of present trends, as automation supplants human manipulation and control of machines with electric control devices, and the use of high speed computers and data-processing equipment results in a revamping of office procedures. He states further that

> Within the blue-collar and white-collar groups similar trends are apparent. Within the blue-collar ranks, only the skilled and highly skilled craftsmen are expected to maintain their proportion in the labour market, and in recent years the biggest employment gains within the white-collar area have been made by the most highly educated and skilled group (professional and technical workers). (16:7, 8.)

65. Davies and Encel have drawn attention to the fact that in Australia "the study of occupational stratification is greatly hampered by poor official statistics" (17:23). Nevertheless, they refer to the following estimates made by Hughes and Rawson (1962): until 1947 at least most of the changes were fairly small; the proportion of manual workers other than those in primary industry remained practically constant from 1921 to 1947 and the growth in the proportion of white-collar workers was relatively small and slow. Davies and Encel also noted the impact of post-war industrial development in Australia and found trends similar to those which had occurred somewhat earlier in the United States. The two most spectacular increases took place in the professional and technical group (from 5·1% to 8·4% of the work force) and in the administrative executive and managerial group (from 5·4% to 7·0%).

66. Figures comparing the distribution of the workforce in Western Australia with the distribution for Australia as a whole are shown in Table 25. In 1961 there were rather more workers employed in primary industry (Groups 4 and 5) and fewer craftsmen, production-process workers and labourers (Group 7/8) in W.A., but otherwise the distributions are very similar. The increase in the percentage of white-collar workers in the W.A. workforce (Groups 0-3) from 35·3 to 37·0 between 1961 and 1966 shows a continuation of the trend noted earlier. To some extent the increase in three of the groups involved has been offset by a decrease in the administration, executive and managerial category. Since the present percentage of white-collar workers is still less than the U.S. figures of 43·1% for 1961, it seems likely that the present trend will continue. Similarly, the percentage of workers engaged in farming, mining, etc. (Groups 5, 6) continues to fall, the present figure for W.A. being of the same order as it was in the U.S. in 1947. The percentage of craftsmen and process workers in W.A. appears to have stabilized at 31·4%, which is somewhat less than the Australian (36·4%—1960) and U.S.

(36·0%—1961) figures. The trend towards an increasing percentage of persons engaged in service, sport and recreation activities which is evident in the U.S. is also evident in W.A.

67. These changes in the world of work which appear to be occurring at an ever-increasing rate in W.A. have significant implications for education. As our technological economy continues to expand, we must anticipate an ever-increasing need for skilled manpower requiring considerable education and a decline in the employment opportunities for the unskilled.

TABLE 25

OCCUPATIONS AS A PERCENTAGE OF THE WORKFORCE (W.A., 1961, 1966 AND AUSTRALIA 1961)

Occupational Group	Australia 1961	Western Australia	
		1961	1966
0 Professional, technical and related workers	8·4	8·3	9·2
1 Administrative, executive and managerial	7·0	6·6	5·8
2 Clerical workers	13·0	12·5	14·0
3 Sales workers	7·6	7·9	8·0
4 Farmers, fishermen, etc.	11·1	14·9	13·1
5 Miners, quarrymen, etc.	0·8	1·8	1·4
6 Workers in transport and communications	6·4	7·1	6·7
7 Craftsmen, production-process workers, labourers, n.e.c.	36·4	31·4	31·4
8 Service, sport and recreation	7·0	7·7	8·3
10 Armed Services, enlisted personnel	1·0	0·8	0·7
11 Inadequately described or unstated	1·3	1·0	1·4
	100·0	100·0	100·0

Sources: Census of the Commonwealth of Australia, 1961 (18); Western Australian Yearbook, 1968 (19).

The Explosion of Knowledge

68. The production of abundant food by a small percentage of the work force has enabled societies to devote more resources to study and research. This has resulted in a tremendous increase in man's knowledge, which appears to be growing exponentially and is commonly referred to as "the explosion of knowledge". This growth of knowledge is of great significance to education, concerned as it is with the transmission of knowledge from one generation to the next. In the first place, educators are concerned with what to teach now that there is so much that could be taught. Further, they are able to take advantage of the increasing information which is becoming available on the nature of adolescence and the process of learning.

69. The Committee has been fortunate to have available to it two particularly useful documents. The first (20) was prepared by Mr L. Pond (at the time Senior Lecturer in Psychology at Claremont Teachers' College) and is a statement of what is known of the nature of mental abilities, the process of learning and the needs of school children. The second (21) was prepared at the request of the Committee by Dr D. K. Wheeler (Reader in Education at the University of Western Australia), and is an up-to-date account of what is known of the nature of adolescence and the problems to be faced by the youth of Western Australia. Summaries of these papers have been included as appendixes of this report for the information of the reader. However, we strongly recommend the study of the full texts of each paper to all teachers and others who are interested in understanding the problems of adolescence and the learning process. Full notice has been taken of the evidence available in these documents and implications to be derived from them have been taken into account in the formulation of the statement of aims which follows, and in drafting other recommendations.

The Aims of Education

70. The relatively recent appearance of a number of significant publications related to educational aims (22, 23, 24, 25, 26) evidences an increasing awareness among educators of their importance. This reflects a growing realization that the question, "Why are we educating children?" needs to be answered before the questions, "What is to be taught?" and "How?" can be meaningfully approached. Also, any evaluation of the effectiveness of educational practices can only be made in terms of the aims, and this is not possible unless these have been identified.

71. Kearney's report on primary school objectives (22) has been used by the Departmental primary school syllabus committees in formulating the objectives of specific subjects. The companion edition prepared later by French and his associates (23), although not directly applicable to Western Australia, has served as a useful frame of reference for the statement of aims which follows. We believe that these aims apply to education generally and any specificity to secondary education depends on the stage of development which has been reached by particular children.

72. Aims can be stated at many levels. The following statement taken from the 1958 Report represents the aims of education at the top or most generalized level.

> The basic aim . . . is to provide the opportunity for girls and boys to develop as individuals and citizens whose attitudes and attainments enable them to live full lives, to contribute to society and to obtain employment satisfactory to themselves and their employers (2:6).

At this level of generalization there is little room for disagreement. While this statement is significant and useful as the criterion for evaluating more detailed statements, it must be recognized that it does not provide classroom teachers with a useful guide to action.

73. The following more detailed statement of aims is presented not so much as a guide for teachers but as a set of criteria which may be used by subject syllabus committees in establishing behavioural objectives which in themselves should be sufficiently detailed to be useful for classroom teachers. No attempt is made at this stage to establish the relative importance of these aims for secondary schooling as distinct from the total education of the child by all agencies.

74. **Intellectual Development.** Education should promote the student's intellectual development by helping him

(i) to improve techniques of communication;
(ii) to consolidate basic skills and to develop study skills;
(iii) to develop the elements of logical thinking and problem solving;
(iv) to develop interest in the pursuit of knowledge; and
(v) to develop appreciation and taste.

75. **Integration into Society.** Education should contribute to the student's integration into society by helping him

(i) to understand Australian society including its cultural, social and political traditions and the role of the individual, the family and other small groups;
(ii) to recognize the rights and responsibilities of individuals and groups in relation to other individuals and groups, and in relation to society and to the State;

Plate 7

These students are learning to participate in group discussions. This is one way in which the school helps students to become integrated into society (paragraph 75).

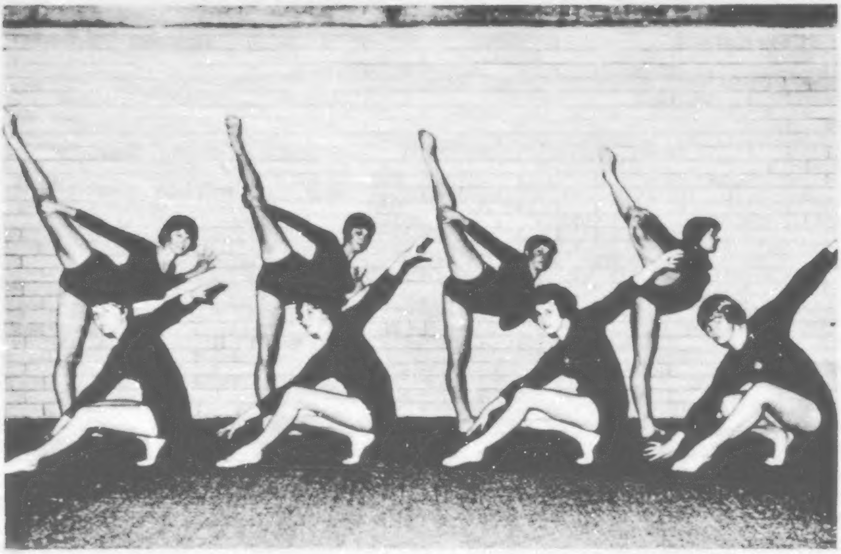


Plate 8

These girls are learning to participate in and enjoy aesthetic and artistic activities (paragraph 75).

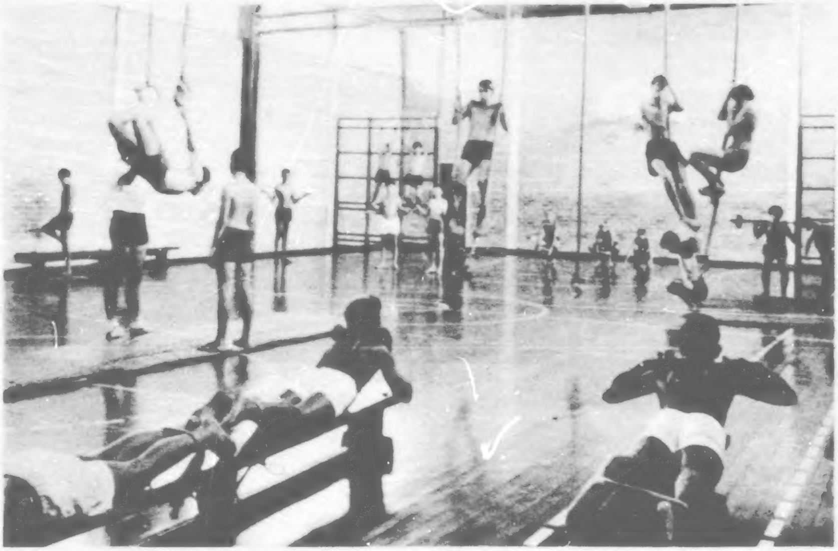


Plate 9

These boys are engaged in various physical activities associated with their course in health and physical education. Schools need to become increasingly concerned with mental as well as physical health (paragraph 76).

(iii) to recognize the role and significance of industrialization, technology and science in modifying society;
(iv) to recognize the agencies which mould public opinion and identify the methods they employ;
(v) to participate adequately in group discussion;
(vi) to participate in and enjoy aesthetic and artistic activities;
(vii) to develop cultural background through reading and participating in other appropriate activities, and by a variety of forms of self-expression; and
(viii) to interpret current events and conditions in their historical and cultural perspective.

76. **Physical and Mental Health.** Education should promote the student's physical and mental health by helping him

(i) to understand and control his body and emotions;
(ii) to follow accepted health and safety practices;
(iii) to cultivate recreational interests and to foster a continuing concern for personal fitness;
(iv) to appreciate and support the services of health and safety authorities; and
(v) to recognize health as a world-wide problem.

77. **Economic Competence.** Education should assist the student to become economically competent by helping him

(i) to explore interests, develop abilities and receive a sufficient range of experiences to make a wise choice of future employment and career;
(ii) to understand something of the functioning of the economic system including the pressures directed at consumers;
(iii) to develop competency in handling personal financial matters; and
(iv) to appreciate measures designed to conserve human and natural resources.

78. **Emotional and Spiritual Growth.** Education should help the student

(i) to move towards emotional maturity;
(ii) to assimilate moral principles and to develop modes of behaviour in accordance with these principles;
(iii) to develop sympathetic understanding of other individuals and groups, including the other sex and other age groups and to recognize health and economic welfare as world-wide problems in which human beings are interdependent; and
(iv) to participate in and appreciate constructive corporate experiences.

The Role of the School

79. Recently an investigation was conducted in Tasmania to determine the public perception of the role of the school. Since no similar investigation has ever been conducted in Western Australia, and since there is every reason to expect attitudes towards education in W.A. would be similar to those in Tasmania, we consider the findings are worth noting. The public response to the questionnaire was dis-

appointing in that only 25% of the random sample responded. However, returns from teachers (80%), parents and friends (63%) and community groups (48%) were more encouraging and the authors expressed the belief that the findings were derived from a much wider view than that normally expressed by influential minority groups. They reported that

> There is no doubt that the public sees the school as having very wide and very considerable responsibility for the total development of the child. The respondents gave the school a greater share of the responsibility than all other social institutions combined. This balance was seen as applying to all except the areas of spiritual growth and physical growth. . . . Clearly the school must be concerned with the intellectual development of the child, it must spend the most time on this area, and it must accept most of the responsibility for the total growth in this area. No one area emerged as clearly second in importance to intellectual development. Moral, aesthetic and social growth are seen as of approximately equal importance overall. Physical growth came out as being of the second least importance and spiritual growth of least importance for the school on all three criteria.
>
> The variation in opinion between various sub-samples, although significant in some instances was, in general, not very marked (27:74).

80. The Tasmanian findings are in accord with our own view that notwithstanding the influence of competing agencies and the limits associated with the length of the school day, secondary schooling is particularly significant in the total education of the individual, especially in these times of rapid change. Nevertheless, parents and the community generally have a major responsibility in education, particularly in the moral and spiritual areas which cannot be delegated entirely to the schools. However, we recognize the need for compensatory education for the disadvantaged. The school should supplement for some children the inadequate and perhaps detrimental influences of poor homes and environments. For this reason more expenditure of resources in the lower socio-economic areas of our community is justifiable.

Recommendations

- **Education by all agencies should promote an individual's intellectual development, integration into society, physical and mental health, economic competence and spiritual and emotional growth (paragraphs 72-78).**
- **The purpose of education is not merely to transmit culture but to equip students for future decision-making with a view to the improvement of society (paragraph 62).**
- **Secondary schooling is particularly significant in the total education of the individual but parents and the community generally must also accept major responsibilities especially in the moral and spiritual areas. The school's prime responsibility lies in the area of intellectual development. The school should also supplement for some children the inadequate and perhaps detrimental influences of poor homes and environments (paragraph 80).**

● All students should be encouraged to obtain as much education as possible for the following reasons:

(i) the functioning of our democratic society depends on a well-educated citizenry (paragraph 62);
(ii) there is much more knowledge to be learnt, and the frontiers of knowledge need to be expanded (paragraph 68);
(iii) the continued expansion of our technologically based economy is likely to depend upon the availability of skilled manpower (paragraphs 63-67);
(iv) employment opportunities for individuals can be expected to depend to an ever-increasing extent on their level of education (paragraphs 63-67); and
(v) participation in creative and artistic activities can develop a cultural background which will enable a person to lead a fuller and more satisfying life.

CHAPTER 5

COURSES OF STUDY

81. Secondary schools contribute to the achievement of the aims of education through appropriate courses of study. There are probably many courses through which the aims could be implemented and it is not our intention to specify one course which all schools would be required to follow. However, there are certain basic principles to be derived from our knowledge of child development, the process of learning and the nature of society which we believe should be a feature of all courses of study. Within this framework, schools should be encouraged to design their own courses, or adapt other courses, to suit the particular needs of their students.

Aims

82. The aims stated in Chapter 4 were designed for all students in Western Australia and, while taking into account the needs of the individual and of society, they are sufficiently general not to be too restrictive on schools. Hence, we believe that all schools should design their courses to achieve these aims. The responsibilities assumed in certain areas will vary from school to school, and in particular between Government and non-Government schools. For example, non-Government schools accept direct responsibilities for sectarian religious instruction, whereas any religious instruction provided by teachers in Government schools must be general and non-sectarian.[5]

Recommendation

All school courses should be designed to achieve the aims of education as presented in Chapter 4 of this report.

83. **Behavioural Objectives for the Subjects.** As already stated, we believe that, to some extent at least, the very limited implementation of the aims stated in the 1958 Report can be attributed to the fact that they do not locate areas of responsibility

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[5] The Education Act makes provision for one period a week to be devoted to special religious instruction given by approved representatives of denominational churches. This instruction may be sectarian but students can be excluded at parental request.

for each subject, nor are they sufficiently specific to serve as a guide to action. In formulating the aims stated in Chapter 4, we adopted the holistic approach of looking at the total needs of the individual. We considered this approach to be appropriate at this level because it focuses attention on our concern with the total development of integrated persons. We could have continued along the same lines and made the aims more specific by describing desirable objectives in behavioural terms as was done by French and his associates. However, we did not persevere in this direction because we do not believe it adequately locates spheres of responsibility for teachers, and also because it does not take advantage of expert knowledge.

84. Our traditional approach to the problem of the growth of knowledge has been for people to specialize in subject areas and for teaching and learning to be organized along these lines. The artificiality of sharp subject divisions is recognized but specialization does allow for expertise. We believe that advantage should be taken of the expert knowledge of specialist teachers in identifying behavioural objectives for each subject. These aims would then be classified so as to be directly applicable to the teaching of subjects as it occurs in our schools. In this way aims should become more than "expressions of benevolent aspiration . . . which may have a rather tenuous relationship to educational practices . . ." (28:186).

85. Statements of educational objectives such as those recently prepared by the Australian Council for Educational Research in relation to the objectives being tested in the Commonwealth Secondary Scholarship Examination are more useful than most statements of aims in that they are more behavioural. We would subscribe to the view that these aims are worth while and consistent with our overall philosophy of education, but consider them to be inadequate in that, as must be expected, they are restricted to that which is externally examinable. Nevertheless, we would recommend these statements as worthy of serious consideration by subject committees. As mentioned previously (paragraph 59), the procedures used to measure achievement exert a dominating influence on what is taught and how it is to be taught. For this reason it is important that the evaluation of students should not be restricted to the cognitive domain (e.g., understanding of factors influencing climate) because this is most readily assessed. Progress made in the affective domain (e.g., the appreciation of literature) should also be assessed, even if these assessments are necessarily subjective and have limited reliability.

Recommendation

Objectives for each of the subjects taught in secondary schools should be formulated and stated in behavioural terms and the evaluation of students should be made in terms of all of these objectives.

86. **Co-ordination of Subjects.** There remains a problem of co-ordination. The specification of aims by subject committees could result in the neglect of certain areas which we have identified as being important, and duplication due to unneces-

sary overlap between the spheres of responsibility claimed for particular subjects. We believe that school authorities should take appropriate action to see that subject aims are consistent with the overall aims of education, and that all these aims are adequately incorporated in the sum of the aims of specific subjects which comprise a school curriculum. To facilitate the co-ordination of these aims we consider that they should be classified according to some taxonomy possibly that of Bloom, Krathwohl and others (24, 25).

87. In formulating their aims, subject committees should be concerned with the contribution their subject can make to the overall aims of secondary education but should focus attention on any unique function served. Full account should be taken of what is known of the nature of adolescence and the psychology of learning in general. In particular, these committees should investigate the more specific research evidence in relation to the teaching of their subjects.

88. The achievement of educational aims ultimately depends upon the behaviour of teachers in classrooms. The appointment of subject senior masters tends to make schools subject oriented rather than purpose oriented. The efforts of specialist teachers within schools need to be co-ordinated and we see this as the responsibility of the headmasters who should see that the work of subject teachers is integrated to provide their students with a well rounded education. Headmasters should be particularly careful to see that aims such as those listed under "Emotional and Spiritual Growth" (paragraph 78) are not neglected.

Recommendation

School authorities should be alert to the need for subject syllabuses to be co-ordinated into a total curriculum which will satisfy the needs of individuals and of society.

Individual Differences

89. Most students want to succeed at school (30) and are worried or depressed if they do not perform reasonably well in most fields, which almost invariably means passing exams (31). According to Wheeler,

> The work of Hebb and Piaget suggests that one desirable feature of the school environment is that it should keep the tasks set the student just sufficiently ahead of his capacity to stretch him to the utmost (21:81).

Pond has also drawn attention to the student's need for achievement (Appendix 10:17) and in addition has emphasized the fact that there is a wide variability in student ability. These individual differences coupled with the student's need for a sense of achievement mean that courses must be differentiated according to student ability. Ways in which this differentiation may be effected are discussed in Chapter 6 which deals with school organization.

Plate 10

This is a typical group of First Year high school students. Although of approximately the same age, they differ markedly in their physical characteristics. This is also true of their mental abilities, and school courses should be differentiated to take this into account (paragraph 89).

Recommendation

Courses in secondary schools should be differentiated according to student ability to enable all students to experience challenge and success to the greatest extent possible.

The Importance of Prior Learning

90. Many of the Piaget replication studies show that both the child's experience and the education he has received influence his attainment of the stages of mental development (Appendix 10:9-10). This point emphasizes the importance of the consolidation of one stage before proceeding with the next. For example, according to Piaget the "Stage of Concrete Operations" is followed at approximately twelve by the "Stage of Formal Operations". To assume that all children entering secondary schools can think in terms of propositions[6] instead of dealing with objects would be a mistake. Some children will be in advance of their age peers and able to deal with such abstractions in primary schools, while for others it would still be necessary to consolidate at the "Stage of Concrete Operations", rather than to attempt the programme designed for the average student. It seems appropriate

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[6] For example: able to handle traditional geometry involving axioms and a system of deductive logic.

here to note Pond's warning that "educationalists should be slow to attribute poor forms of behaviour to lack of intelligence. The first thing to look for is a lack of information, a lack of skills and poor training in information processing" (20:14).

Recommendation

The secondary school curriculum should not be regarded as separate and distinct from the primary school curriculum but rather should consolidate and build upon it.

Curriculum Content

91. As a result of the "explosion of knowledge" (see paragraphs 68-69), there is so much knowledge becoming available to be taught that we must become progressively more selective in deciding what should be placed in school curricula.

92. **Retention.** Factual information is rapidly forgotten unless it is "over-learnt" (Appendix 10:11). Over-learning is very time consuming and only a limited amount of material could receive this treatment in schools. Since factual information can be obtained from reference sources, what is required to be learnt should be restricted to that which is particularly useful and promotes efficiency (e.g., the basic number facts). Because of their relative permanence, schools should focus their attention on the understanding of major generalizations, attitudes and methods of work. Pond indicates that

> Material which is meaningful, significant, interesting, connected, organized and well understood is retained better, especially if relationships and applications are "brought out" in teaching and the material thoroughly understood and learned in the first place (22:23).

Recommendation

Schools should emphasize the understanding and use of information rather than its memorization.

93. **Learning to Learn.** The evidence provided by Harlow and others that intelligent behaviour can be learnt through abundant problem-solving experience suggests that students should be provided with ample opportunities for this type of experience (Appendix 10:4). The value of this "learning how to learn" phenomenon is indicated by Travers's statement that it "represents a rather permanent kind of learning and is manifest for long periods after practice has stopped" (32:206). Pond states that

> intelligent behaviour is to an appreciable degree the outcome of experience and education, which means that by enlightened procedures it is possible to build in "intelligence" to a degree which will significantly influence the child's mental functioning.

STUDY ROOM 1

Plate 11

These students are engaged in independent study activities in their school library. The ability to learn independently is an important skill for students to acquire (paragraph 93).

and further that

> more thought must be given to the nature of learning activities which will not only increase the pupil's knowledge but will also increase his capacity to solve problems, to plan, to organize, design and control—in short to cope with life's problems in an intelligent manner (20:11).

Within a class the emphasis should be upon student learning rather than upon the teacher's teaching. There should be less oral information giving to class groups and there should be more emphasis on individual assignments and small group work. While we may be uncertain as to what information is most important for today's students in the world of tomorrow, one thing about which we can be certain is that they will need to know how to learn. Pond identified the following implication from his study of how learning occurs:

> Learning is akin to thinking and the present trend is towards types of learning which involve thought. . . . Learning involves activity, in that response is an essential part of the process. The most valuable activity is mental activity which makes some real demand upon problem solving behaviours. . . . Learning should be meaningful, significant, easy enough to be interesting, hard enough to promote real effort, connected, related to the child's social background and have built-in intrinsic rewards (20:28-29).

Recommendation

Schools should give high priority to teaching students how to learn and should emphasize student learning rather than the teacher's teaching. Students should be actively involved in the learning process, and this activity should include, in particular, thinking, responding and being rewarded.

94. **Transfer.** All teaching is based on the assumption that what is learnt in school will influence subsequent behaviour in a variety of situations. Skill in the writing of English is not taught primarily so that the student will produce better written expression in school, but so that he will be able to prepare all kinds of effective written communications in his later daily life. It is assumed that there will be a "transfer of training" from the learning at school to the life situation. Early studies such as those by Thorndike showed that this transfer is not automatic and complete. More recent studies have shown that material can be taught in such a way as to facilitate transfer. The content material of school learning should resemble as closely as possible that used in life situations. Material should be included for its utility either for work or leisure and should not be included simply for some hypothetical training value. The responses or behavioural outcomes and standards of performance required in school should closely resemble those required in life situations; the emphasis should be on actively tackling real problems rather than on passive learning. The application of knowledge and skills should be deliberately taught as an essential part of the process of learning (Appendix 10:12).

Recommendation

The material of school courses should be significant in life situations and it should be taught in such a way as to facilitate transfer.

Interest and Anxiety

95. High anxiety leads to high achievement on comparatively simple routine tasks, but to low achievement on more difficult problem-solving tasks. Since, as already indicated, we are convinced that the emphasis in education should be on thinking and problem solving, we believe that high anxiety situations should be guarded against in schools (Appendix 10:16).

Recommendation

Teaching should aim to establish interest in the subject being studied and learning should go forward in conditions of low anxiety.

Creativity

96. In the world today we face many problems which no one has yet solved. The solution of these problems will depend on some original thinking or creativity. Creativity is also important to individuals in solving problems new to them and in the satisfaction that it provides. Over-emphasis on conformity, strictness, the accumulation of factual information, drills and dependency reduce creativity and hence should be avoided (Appendix 10:8).

Recommendation

Schools should foster creativity by allowing students freedom to exercise some independence and originality.

Pastoral Care and Moral Education

97. Peer group pressures have always emerged during adolescence to challenge adult standards, but these pressures are exacerbated today by a number of changes in contemporary society: mass media are exerting an increasing emphasis on adolescent wants, attitudes and behaviour; adolescence is being prolonged by the need for more schooling; and, the increased mobility provided by modern transport gives adolescents a greater measure of immunity from adult direction. It is reassuring to note that there is no great divergence between the values of adolescents and those of their parents, but it is important to recognize that the process of transition from childhood to adulthood is successfully accomplished only with some social strain and individual maladjustment (Appendix 9).

98. Parents and schools should exert a stabilizing influence on youth, facing the problems associated with uncertainty. The challenge presented by youth cannot be ignored. Their arguments should be listened to and answered, and any injustices uncovered should be rectified. To quote Wheeler,

> If we wish to foster co-operation and true morality, as distinct from the morality of constraint, it will be necessary to modify authoritarian, teacher-dominated situations where the student's sole responsibility is to do what he is told and keep the rules lest he be punished (21:83).

The important implication here for schools in particular is that there is an increasing need for students to be provided with guidance and the opportunity to contribute to their own development.

99. One way in which students can contribute to their own development is by participating in discussions on controversial issues, including such topics as those bearing on religion and sex. However, the parents' rights and wishes in these matters should not be disregarded. Basic factual information should be provided by schools except where individual parents specifically request exemption. The moral issues involved should be discussed under the direction of competent teachers who would be responsible to see that all points of view are advanced but none advocated which is not acceptable to the community as a whole. Here again the parents' right to exclude children from these discussions should be preserved. Specific details of what should be taught or discussed, and when, should be worked out by appropriate syllabus committees. Sex education could well come in the ambit of a health education syllabus committee and religion could be the province of a social studies committee, or special committees could be constituted for either or both.

100. It is undoubtedly true that no influence can replace that of a good home where love and harmony abide and intelligent guidance is present. The Church, too, seeks to promote the child's best spiritual and overall development in a special

and significant way. In current society, however, with so many homes where both parents go to work, where many children are unsupervised for an appreciable time after school, and where many homes seem to be affected by a diversity of factors harmful to children, the school must assume more and more responsibility in the field of character training.

101. The first essential to success in furthering the best development of what may be described as the "intangibles" in education is a conviction by the teacher of their importance. Teachers individually and collectively as a team in a school need to utilize to the full any opportunities which arise. A very considerable difficulty centres around the fact that probably the most effective means in the school situation for developing character potential are incidental means. Nevertheless, certain subjects lend themselves to the discussion of moral issues more so than others. For example, in the study of literature many such opportunities would present themselves. There is no evidence that exhortation and moralizing by teachers and the learning of rules have any discernible effect in producing moral conduct.

102. Moral education should be treated as an integral part of all school activities. No teacher can regard himself as merely an instructor in a subject field, but must accept moral education as a concomitant responsibility in all his relationships with students. Since it is the responsibility of all teachers and not the specific responsibility of specialists, there is a danger that moral education may not receive adequate attention. In the subject areas, committees will draft syllabuses and as their first task they should identify their objectives, or what it is they are trying to do. The aims of moral education also need to be identified and, because of their importance, we have decided to elaborate our aims in this area by attempting to identify the moral values upon which our society rests and which must be understood and accepted by all citizens.

103. **Moral Values.** The individual should enjoy personal freedom, in so far as it does not interfere with the rights of others, and equality of opportunity with no discrimination because of race, nationality, religion, financial status, social class or sex. Personal freedom should include freedom of thought and expression, freedom from physical restraints and freedom to worship as one pleases, including the right not to worship. Everyone should be able to pursue the satisfaction of his needs according to his own wishes, providing he does not interfere with the rights of others. All should be encouraged to help others and to co-operate with them to contribute to group welfare.

104. Some restrictions must be placed on individuals for their own protection and for the protection of the rights of others. Individuals must have respect for life and health, property, honesty and truth, and should abhor homicide, personal injury, wanton destruction, wasting time or other resources, cheating and lying. Individuals must also have respect for those authorities which have been established to protect the rights of individuals and the common good and should obey their ordinances. Those with such authority, including parents, school teachers and law

enforcement agencies, need to recognize the responsibilities which should be associated with authority. At times our actions must be guided by what represents the greatest good for the greatest number, but any unnecessary restraints on individual freedom should always be guarded against. The right of the individual (or of minority groups) to defend himself when necessary against injury or injustice must always be recognized as an inalienable right. While the rulings of authorities should be accepted, criticism must be tolerated, and changes made where laws are found to be unjust or unnecessary in terms of individual freedom and the common good.

Recommendations

- **Secondary schools should provide students with pastoral care and the opportunity to contribute to their own development. There is a need for guidance and counselling particularly in relation to such controversial issues as the moral aspects of sex and religion.**
- **All teachers must accept the inculcation of the moral values upon which our society rests as a concomitant responsibility in all their relationships with children.**

Religion and Education

105. The role of Government schools in relation to religious education poses special problems. The Teachers' Union has expressed its concern over the effectiveness of special religious instruction in schools (27), and general religious instruction is only provided in a few secondary schools. We favour the new approach which is being considered for introduction with the Achievement Certificate proposals for 1969. The personnel resources of the churches would be concentrated on making better provisions for Special Religious Instruction for students in First Year. In subsequent years the schools would offer a religious education course as a two-period option for students electing to take it and taught by teachers wishing to specialize in this area. The course would cover a syllabus drafted by a committee appointed for the purpose and approved by the various church authorities. In addition, comparative religion should be included as a part of the social studies course and varying viewpoints of different religions in relation to controversial issues could be discussed as part of pastoral care.

Recommendation

The present arrangements for religious education in Government secondary schools should be modified. Church authorities should concentrate their resources on Special Religious Instruction in First Year and in subsequent years religious education should be made available as an optional subject to be taught by specialist teachers.

Specialization

106. At the present time in this State students must make early decisions in relation to school courses, which limit their later career opportunities. For example, at the end of First Year, thirteen-year-olds have to decide whether or not they will study Science B (or Physics and Chemistry in some non-Government schools). Not only is this subject or its equivalent an entry requirement for some occupations, but also it is virtually a pre-requisite for the study of Physics or Chemistry in Years 4 and 5. At the end of Third Year, fifteen-year-olds have to decide on areas of specialization such as history, geography, economics, physics, chemistry, biology and mathematics. A typical top academic course in Fifth Year would be: English, Mathematics II, Mathematics III, Physics, Chemistry, French. A student following this course is no longer obtaining a broad general education; areas of study such as biology, geography and history are completely neglected. Another student may elect a course such as the following: English, French, German, History, Geography, Biology. This course is not only restrictive in terms of general education but seriously limiting in terms of opportunities for later study or future careers. Whereas a student following the first course may still study biology or any social science at the University, a student following the latter course could not undertake any university course involving mathematics or physical science.

107. Early specialization by students is also causing a good deal of concern in the United Kingdom. The Vice-Chancellor of the University of Lancaster (Mr Carter), in arguing that the English Sixth Forms are too restrictive, stated: "The newer universities find themselves having deliberately to broaden the kind of education provided in schools" (34). Carter was participating in a conference on education problems concerned with transition from school to university held at Cambridge University in September, 1967, where it was agreed that "the objective, crucial for science and technology, is a broadening of the curriculum. We believe that it is an educational must that the age of choice should be delayed as long as possible." Sir Neville Mott, Professor of Physics at Cambridge, stated that "nobody denies that a broad curriculum is educationally desirable" (35).

108. In 1965 in Great Britain a committee was set up under Dr F. S. Dainton, Vice-Chancellor of Nottingham University, to examine the flow of candidates in science and technology into higher education. The Dainton Report contains the following pertinent recommendations:

> There should be a broad span of studies in the sixth forms of schools, and irreversible decisions for or against science, engineering and technology should be postponed as late as possible.
>
> Normally, all pupils should study mathematics until they leave school; the teaching of mathematics should show the effects of associating mathematical thinking with other studies, such as experimental or engineering sciences, or with economics.
>
> Breadth, humanity and up-to-datedness must be infused into the science curriculum and its teaching (36).

109. We can find no good reason for early subject specialization by students in Western Australia and believe that secondary schools should concentrate on providing students with a broad general education which will help them to become intelligent citizens and also serve as a sound basis for further education in whatever area a student elects to proceed. We interpret a "broad general education" as one directed towards the aims of education as outlined in Chapter 4. The subjects English, health and physical education, mathematics, science and social studies are regarded as central to any such programme. Foreign languages, art, music, manual arts, home economics and other subjects should be made available on an elective basis as they fulfil a vital need in providing for individual interests and capacities, while at the same time contributing to general education. The more general education a person has, the more cultivated he is likely to be, the broader is his choice of future occupation and the more adaptable he could become to changing work conditions (see paragraphs 63-67).

Recommendation

Students should not have to make early decisions in relation to courses which could limit their outlook and their future career opportunities.

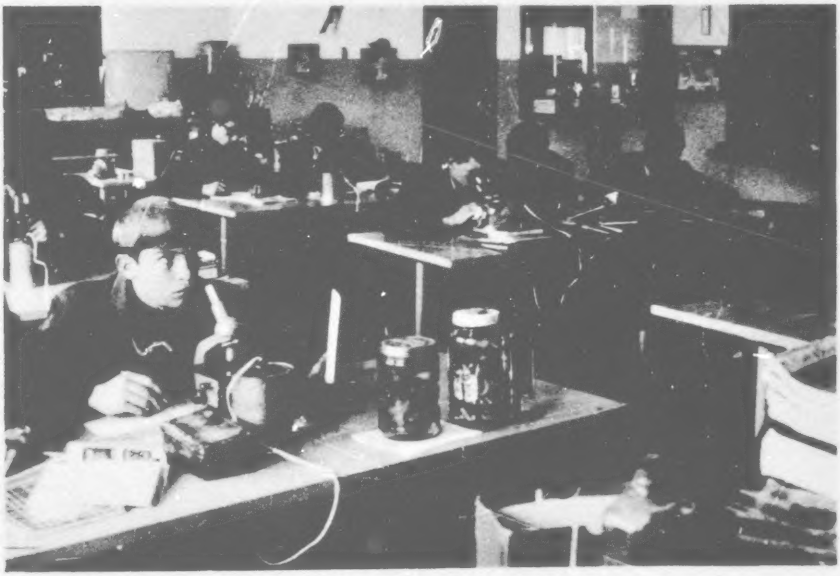

Plate 12

Science is one of the core subjects (the others being English, mathematics and social studies) which, together with health and physical education, are regarded as central to any course of secondary education (paragraph 109).

Plate 13

Art is one of the subjects which should be made available on an elective basis in secondary schools. It provides for individual interest and talent, and at the same time contributes to general education (paragraph 109).

The Achievement Certificate Proposals

110. The proposed courses of study submitted by the Achievement Certificate Council (Appendix 8:7-11) have been closely examined and we are satisfied that in general terms they are in keeping with the principles described above. We see many advantages in these proposals when they are compared with the present situation and would offer the following comments.

111. The courses are such as to have potential for the achievement of the aims of education as presented in Chapter 4 of this report. The objectives for each subject have already been or are being formulated by subject syllabus committees and there is a firm commitment by all involved that evaluation of students should be made in terms of all these objectives. It is to be hoped that the school authorities will make every effort to see that the subject syllabuses are co-ordinated into an effective total curriculum. The very title "Achievement Certificate" reflects concern with satisfying the student's need to achieve and courses are differentiated according to student ability.

112. Notice is taken of the student's primary school achievement in the testing which is used for the initial placement of students entering high schools (Appendix 8:5). We believe it would be an improvement if the placement of students were to

be based on a primary school ranking with the placement tests used only to establish comparability between schools. This would be more consistent with our proposals for the assessment and certification of a student's secondary education (see Chapter 8). The provision of pastoral care evidences concern with the student's need for guidance and counselling. The proposed changes in relation to religious education have already been discussed (paragraph 105).

113. Students will not have to make course decisions seriously limiting their future career opportunities as early as at present. However, we would prefer to see students working at basic level in the core subjects continuing after First Year to spend as much time on these subjects as those working at the higher levels. Nevertheless, we recognize the present need for general education and pre-vocational education to be concurrent for students of well-below average ability. This is because, in being required to study courses in the past which have been too difficult, students have been alienated from the general education courses. It is hoped that in the near future all students will experience success and hence be well satisfied by the more appropriate courses to be provided in the core subjects.

114. The proposals envisage the possible extension of general education courses in the core subjects to Fourth Year (Appendix 8:1). We not only favour this suggestion but are of the opinion that these courses could well be extended to the end of secondary education. As already stated (paragraph 109) we do not believe that there is a need for early subject specialization in secondary schools.

Recommendation

In general, the Achievement Certificate proposals are in keeping with the basic principles for course construction enunciated in this chapter, and we would favour their extension to encompass all years of secondary education.

CHAPTER 6

SCHOOL ORGANIZATION

115. The usual pattern of school organization adopted in Western Australian secondary schools is streaming or the grouping of students according to general ability. (See paragraph 28.) Streaming depends upon the acceptance of the belief that intelligence is dominated by a massive "g" component upon which all school performance is dependent. This view was held by Spearman and his followers. However, intelligence is no longer thought of as a unitary trait but rather as a combination of factors some being specific to a particular ability and others influencing a group of mental abilities (Appendix 10:1-2). Further, streaming does not appear to substantially reduce the range of individual differences in classes and may well have undesirable effects (Appendix 10:5-6). Pond states that

> streaming is apparently much less effective than was once thought and there is a need for a much more flexible form of grouping, as well as the necessity for attempts within each class to adjust techniques of learning to meet the problem posed by the wide variability in the ability and the achievements of pupils (20:12).

The abolition of streaming has such important ramifications that, in accordance with our terms of reference, we have investigated developments elsewhere in relation to school organization to help us decide what recommendations we should make for the secondary schools of Western Australia.

Streaming

116. In the United States of America streaming is referred to as "ability grouping", and under this heading in the *Encyclopedia of Educational Research* (1960) it is reported that teachers tend to react more favourably to teaching classes which have been ability grouped, being under the impression that in this way "homogeneous" groups of students are provided with differentiated instruction. Research evidence is quoted which indicates that, in fact, ability grouping only imperceptibly reduces student variability, and the conclusion is reached that "the administrative procedure of ability grouping . . . does not solve the problem of adapting instruction to children who differ markedly in many ways" (37:224).

117. The result of a major study of the effects of ability grouping in New York City primary schools has recently been reported by Goldberg and Passow. They concluded that

> Ability grouping is inherently neither good nor bad. It is neutral. Its value depends upon the way in which it is used. Where it is used without close examination of the specific learning needs of various pupils and without the recognition that it must *follow* the demands of carefully planned variations in curriculum, grouping can be, at best, ineffective, at worst, harmful. It can become harmful when it lulls teachers and parents into believing that because there is grouping, the school is providing differentiated education for pupils of varying degrees of ability, when in reality that is not the case. It may become dangerous when it leads teachers to under-estimate the learning capacities of pupils at the lower ability levels. It can also be damaging when it is inflexible and does not provide channels for moving children from lower to higher ability groups and back again either from subject to subject or within any one subject as their performance at various times in their school career dictates.
>
> However, ability grouping may be used when it grows out of the needs of the curriculum and when it is varied and flexible. Pupils can be assembled for special work, whether advanced content or remedial instruction in a given subject. Teachers can more easily carry out specific plans appropriate for one ability level without having to provide for other pupils for whom the particular content may be inappropriate. Pupils at all levels can be freed to participate more fully without fear or derision either for being "too dumb" or "too smart".
>
> At least until such time as procedures for more completely individualized instruction become incorporated into school policy and teacher preparation, schools will continue to rely on various kinds of grouping in their attempt to differentiate instruction. It is, therefore, essential to recognize that no matter how precise the selection of pupils becomes or how varied and flexible the student deployment may be, grouping arrangements, by themselves, serve little educational purpose. Real differences in academic growth result from what is taught and learned in the classroom. It is, therefore, on the differentiation and appropriate selection of content and method of teaching that the emphasis must be placed. Grouping procedures can then become effective servants of the curriculum. (38:167-9)

118. A study conducted in Utah explored the differences between two adjacent and closely comparable districts at both the primary and junior secondary levels. One of these districts employed random grouping and differentiated the curriculum principally through the use of enrichment, while the other adopted a system of ability grouping and differentiated the curriculum principally by adjusting the rate of presentation of the curriculum materials. It was found that achievement differences over four years were not large, but superior students generally showed greater achievement gains in ability grouped classes, while slow pupils did better in the random classes. Slow boys had notably better attitudes towards peers, the teacher and the school in ability grouped classes, but ability grouping was generally associated with less favourable self-concept scores at all levels and for all types of students (39:85-92).

119. Streaming is almost unknown on the continent of Europe, but it is the most common form of school organization in the United Kingdom. In England, Daniels investigated the attitudes of teachers to streaming and its effects on junior primary school pupils. He reported that, "a large majority of English primary school teachers believe that streaming is educationally sound" being of the opinion that "dull and backward children make the best progress scholastically when taught in classes made up of children with similar ability and attainments to themselves" (40:77). However, as a result of his research, Daniels concluded that

> there appears to be fairly definite evidence that the policy of non-streaming, as compared with streaming, significantly increases the average I.Q. of children in the junior schools . . . increases the mean scores of junior school pupils in reading and English tests . . . increases the level of arithmetic attainment (41:127).

120. Concern over streaming is also evident in the Plowden Report which found that "professional opinion is swinging more rapidly against streaming than is public opinion generally" (28:288). A major investigation into streaming is being conducted by the Nuffield Foundation for Educational Research. This study is financed by the Department of Education and Science and an interim report on the research which is "far from complete" is included in the Plowden Report (29, Appendix II). One unsatisfactory feature of streaming to which attention is drawn is its inflexibility. After initial placement in a stream the chances of a pupil being transferred are very slight. Vernon estimates that "about 10% of all children should be upgraded or downgraded each year if relative homogeneity is to be preserved" (29:551). This is a good deal more than occurs in practice.

121. The Plowden Report noted Yates and Pidgeon's summary of research (1959) which concluded that it was not possible, on the evidence available, either to establish a case against streaming or to prove that it was an effective form of organization. Nor did Plowden consider that further evidence published later (Jackson, Daniels, Douglas) materially altered the conclusion. In noting some evidence which indicated that "achievement in a limited field of measurable attainment is higher in streamed schools", attention was drawn to the fact that the tests were

> biased against the non-streamed schools in that they favour outcomes of methods of teaching to which less attention is paid in these schools and do not include measures of some of the objectives which many non-streamed schools consider to be of great importance (29:574).

The following statement was made in the conclusion on primary school organization:

> We welcome unstreaming in the infant or first school and hope that it will continue to spread through the age groups of the junior and middle schools (28:291).

122. Thompson has presented statistical results which would appear to support a less rigid approach to streaming in secondary schools also. He provides evidence which shows that the original streaming of students entering comprehensive schools in England is unreliable in terms of their subsequent performance. (See also 28:288.) Thompson also states that in the parallel classes (unstreamed) which he established at Woodlands there is "a distinctly better attitude towards work and school generally . . . in the year group as a whole" (42).

123. Dr Conway, the headmaster of the J.F.S.[*] Comprehensive School in London contends that "early streaming merely transferred to within a school the defects of a selective system which educationalists had hoped to avoid in introducing comprehensive schools". He cross-set his school in four ability groups for each subject and found considerable variability in a student's performance from subject to subject. He found that, of 233 students,

32 were in the top group for 6 or more subjects
9 ,, ,, ,, ,, ,, ,, 5 subjects
17 ,, ,, ,, ,, ,, ,, 4 ,,
15 ,, ,, ,, ,, ,, ,, 3 ,,
24 ,, ,, ,, ,, ,, ,, 2 ,,
51 ,, ,, ,, ,, ,, ,, 1 ,,
85 ,, ,, ,, ,, ,, ,, 0 ,,

Of the 32 students in the top group for six or more subjects only 8 would have been streamed into the top group at the beginning of their secondary education on the basis of I.Q. Of the 85 students who were not in the top group for any subject 1 was in the second group for six subjects or more, 1 for five, 9 for four, 15 for two and 23 for one. Only 5 students were in the fourth or lowest group for all subjects (43).

124. Schmidt has provided similar evidence from the J. J. Cahill Memorial High School in New South Wales. He found that only 16 of 122 Form 4 students were in the same level for all six of their cross-set subjects. Seventy students were in advanced level for at least one subject of whom 23 were at advanced level in one subject, 17 in two, 7 in three, 8 in four, 8 in five and 7 in six subjects. At the other end of the scale there were 57 students who were in the basic (or fourth) level for at least one subject and only one student was in basic level for all subjects. Schmidt contends that "the earlier fears that frequent change in groups would lead to insecurity and disturbance amongst pupils have been unfounded". The need for pastoral care in this situation is recognized and problems of implementation in relation to time-tabling, supervision of student movement, clerical work and preparation load for teachers is acknowledged. He concludes:

> Whatever the reasons, a unanimously acknowledged improvement in tone, in teacher pupil relations, in academic achievement, in loyalty, in conduct and in social attitudes of pupils has become evident over the past three years (44).

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[*] Jewish Free School.

125. Considerable evidence obtained in Western Australia supports the point of view that streaming on general ability only marginally reduces variability of performance within the class groups which are formed. The results shown in Table 26 are typical of such evidence.

TABLE 26
PERFORMANCE OF STREAMED CLASSES ON A MATHEMATICS TEST, GOVERNMENT SECONDARY SCHOOL (W.A., 1967)

Class (streamed on general ability)	Number of Students in				
	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	Total
1A	31	6	4	1	42
1B	13	13	11	3	40
1C	9	14	13	4	40
1D	4	14	15	6	39
1E	0	9	9	18	36
1F	2	3	7	26	38
Total	59	59	59	58	235

Source: Data collected by L. Pond, Vice Principal, Claremont Teachers' College.

The students at the school involved were streamed into six classes (1A to 1F) on the basis of their general ability as indicated by their performance on intelligence and reading tests and by their primary school records. Their performance on a mathematics test at the end of First Term showed a wide range of achievement in each streamed class and considerable overlap between classes. Students in 1A were identified as being in the top one-sixth in terms of general ability but only 31 ranked in the 1st Quartile in Mathematics achievement; six were in the 2nd Quartile, four in the 3rd Quartile and one in the 4th Quartile. A similar situation exists in relation to the students streamed into 1F in that two performed well enough to be in the 1st Quartile, three to be in the 2nd Quartile and seven in the 3rd Quartile. If courses were to be differentiated according to student achievement, with one course designed for each quartile, it would be necessary to have four groups in all except one class (1E). It would seem that little is to be gained in such circumstances by general ability streaming; the only result would be disproportionate numbers in each of the groups working on different courses in each class.

126. The available evidence indicates that streaming serves little, if any, useful purpose and may be harmful. For this reason we believe the practice should be discontinued. The organizational procedures to be adopted in its stead should be such as to facilitate differentiation of instruction and decisions in this regard can only be made after this issue has been discussed.

Recommendation

Since streaming appears to serve little, if any, useful purpose and may in fact be harmful, the practice should be discontinued.

Providing Differentiated Instruction

127. One of the recommendations which we have already made arising out of the research evidence on the needs of students is that "Courses in secondary schools should be differentiated according to student ability to enable all students to experience challenge and success to the greatest extent possible" (paragraph 89). One means of differentiating instruction is by acceleration.

128. Acceleration is the term used to refer to the organizational procedure whereby students are allowed to progress through a common course at different rates. This approach has been used in the Unit Progress Plan being tried out in some West Australian primary schools for the teaching of reading, spelling and mathematics. A unit is defined as the amount of work in a subject which can be completed by an average pupil in one term. Pupils of above average ability may spend less than a term on a unit, while those of below average ability may take more than a term to master a unit. Further information on the Unit Progress Plan is to be found in two articles published in *Education* (45, 46). Ideally each student should progress at an independent rate, but this has not proved possible in practice and group teaching methods have been adopted. The only exceptions have been in certain enriched situations when particularly competent teachers with small classes of more able students have had success with the more individualized procedures.

129. Group teaching[8] involves sub-dividing a class into groups according to ability so that each group can be provided with instruction at an appropriate level. Suppose a class is sub-divided into two groups. The teacher now has only half the time to devote to the direct teaching of each group. This does not create any real problem as students need time to learn apart from receiving direct instruction from the teacher, and the teaching becomes more efficient when the level of instruction is more appropriate and directed towards a smaller group. However, there is a limit to the number of groups which can be formed, depending on a number of factors. With too many groups teaching time may become inadequate, unless suitable independent study materials are available. Groups not being taught must have assignment work to do. This involves extra preparation for the teacher. Assignments must be marked and with more groups this consumes more time. Large groups take longer to teach than small groups, hence less groups can be formed in larger classes. Finally, group teaching requires different skills from class teaching and teachers need to learn these skills. In summary, the extent to which

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[8] For a useful discussion on group teaching see the Scottish Education Department's publication *Group Teaching in Primary Schools* (47).

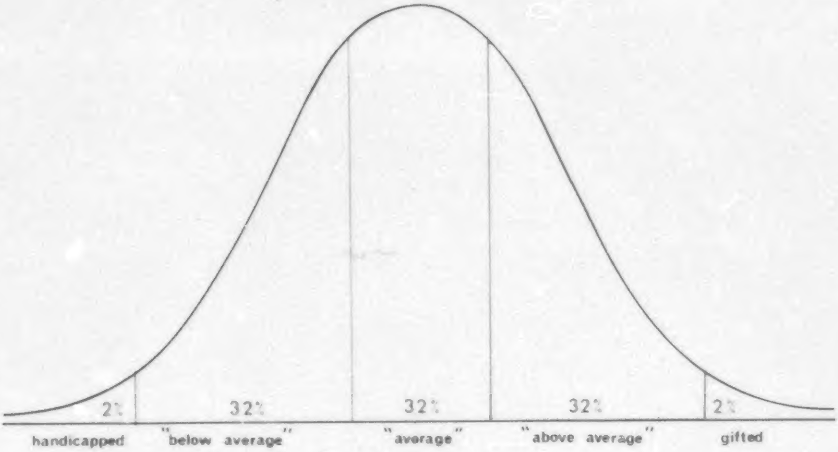

Figure 8

GROUPING A CLASS FOR DIFFERENTIATED TEACHING
METHOD 1: GROUPS OF EQUAL SIZE

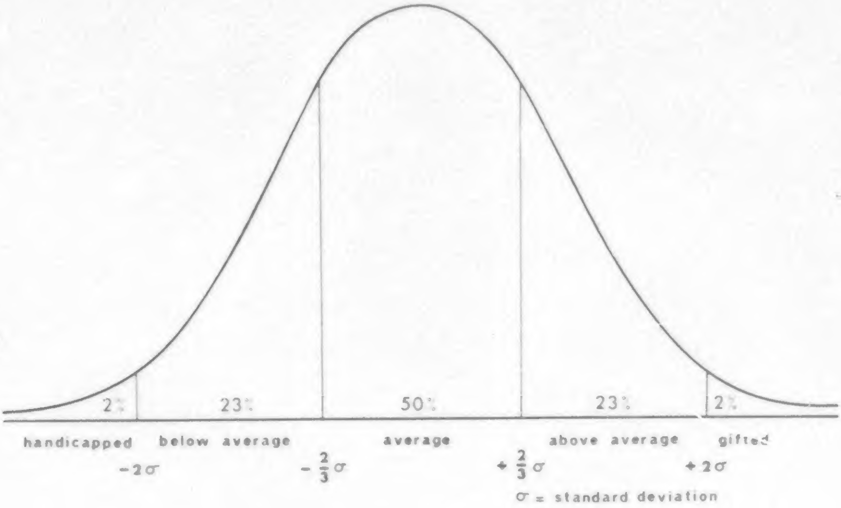

Figure 9

GROUPING A CLASS FOR DIFFERENTIATED TEACHING
METHOD 2: GROUPS WITH EQUAL ABILITY RANGES

group teaching can be applied depends upon class size, the availability of self-instructional materials and the skill of teachers. Under the present circumstances in our schools, most primary teachers are able to cope with no more than three groups in a classroom. At least this has proved to be the case in the Unit Progress schools and in a number of other schools where group teaching methods have been tried.

130. Consider a class of children normally distributed in terms of their ability in a subject, who are to be divided into three groups for differentiated instruction in that subject. One way in which this can be done is to divide the class into three equal-sized groups as shown in Figure 8. This results in an "average" group within which there is a small range of ability as compared with the "above-average" and "below-average" groups, even when the handicapped and gifted are excluded from consideration. Since teaching tends to be directed towards the average member of any group, this results in the "average" students being better catered for than those in either of the other groups, particularly those at either extreme. For this reason the procedure of forming groups with equal ability ranges (see Figure 9) is preferable. This results in half the children being in the average group, and about one-quarter in each of the below-average and above-average groups.

131. Figure 10 shows both the variability of performance within a grade group and the overlap between grade groups. The two vertical lines on the Grade 6 distribution identify the average group as defined in the previous paragraph. It can be seen that the above-average Grade 6 pupils are all performing beyond the average level of performance of Grade 7 pupils, and the below-average Grade 6 pupils are all performing below the average level of Grade 5 pupils. Thus, it seems reasonable to assume that if the average pupil completes 1 stage per year, the above average could complete $1\frac{1}{6}$ stages per year and the below average $\frac{5}{6}$ stage per year. This situation is illustrated in Figure 11. It will be noted that, if such an approach were adopted, students of below-average ability would still be completing the primary curriculum in their second year in high school, and above-average ability pupils would need to start the secondary curriculum at the beginning of Grade 7. This poses at least two problems:

1. It emphasizes to the individual below average student in secondary school that he is in fact still on primary school work.
2. It assumes that the content and methodology suitable for teaching the concepts involved in Stage 7 are the same whether it [illegible] being taught to an above average eleven-year-old or a below-average fourteen-year-old.

Because of these problems we believe that a multi-level approach should be adopted for the teaching of the core subjects English, mathematics, social studies and science.

132. For the first three years, we recommend three levels: advanced level for above-average students defined as being in the upper quartile of ability in the subject; intermediate level for average students; and, basic level for below-

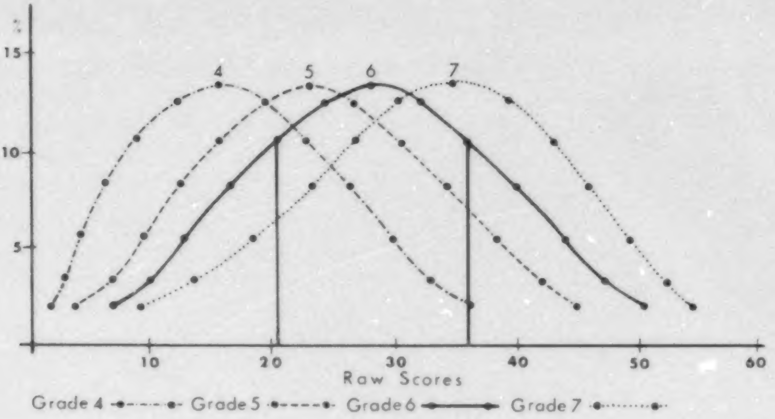

Figure 10

VARIABILITY OF PERFORMANCE WITHIN GRADES AND BETWEEN GRADES

Grade Norms—A.C.E.R. Reading for Meaning (W.A., 1965)

average students defined as being in the lower quartile of ability in the subject. (See Figure 12.) Acceleration is involved in that First Year Advanced Level may be equivalent to Third Year Basic Level in terms of the conceptional difficulty involved, but it would not be labelled as such and would be taught using different content, materials (e.g., textbooks) and methods.

133. After Third Year the character of the school population changes considerably. Approximately 89% of an age group completes Third Year but only about 32% return to school for Fourth Year. This Fourth Year group tends to be composed of the more academically capable students and this provides the opportunity for further course differentiation. The advanced group in any subject could be sub-divided into two groups, which may be called Advanced A and Advanced B. Advanced A courses would be of a level equivalent to the present matriculation courses and would accommodate some 8-10% of an age group, while Advanced B courses would be of a level equivalent to the present Leaving course and would accommodate some 15% of an age group. Some students are likely to be capable of advanced level courses in some subjects but not in others. For these students and the increasing numbers of average ability students (intermediate level) who are staying on into Fourth and Fifth Years, intermediate level courses should be made available.

134. It can be argued that more levels are desirable because this makes the range of ability at each level smaller. This is so but it also results in the proliferation of groups. This would be particularly serious in a small school such as a junior high

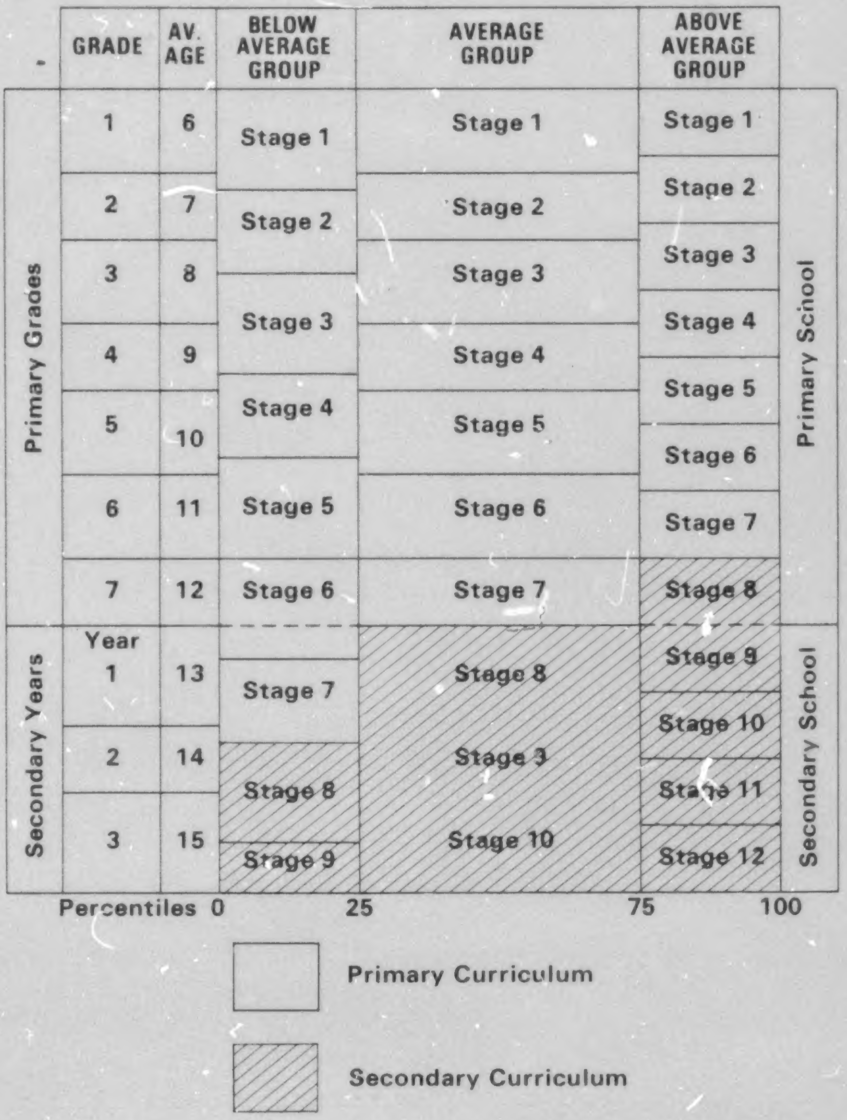
GRADE
AV. AGE
BELOW AVERAGE GROUP
AVERAGE GROUP
ABOVE AVERAGE GROUP
Primary Grades
Secondary Years
Primary School
Secondary School
1
2
3
4
5
6
7
Year 1
2
3
6
7
8
9
10
11
12
13
14
15
Stage 1
Stage 2
Stage 3
Stage 4
Stage 5
Stage 6
Stage 7
Stage 8
Stage 9
Stage 1
Stage 2
Stage 3
Stage 4
Stage 5
Stage 6
Stage 7
Stage 8
Stage 9
Stage 10
Stage 1
Stage 2
Stage 3
Stage 4
Stage 5
Stage 6
Stage 7
Stage 8
Stage 9
Stage 10
Stage 11
Stage 12
Percentiles 0
25
75
100
Primary Curriculum
Secondary Curriculum

Figure 11
VARIATIONS IN RATES OF PROGRESS IN A SUBJECT

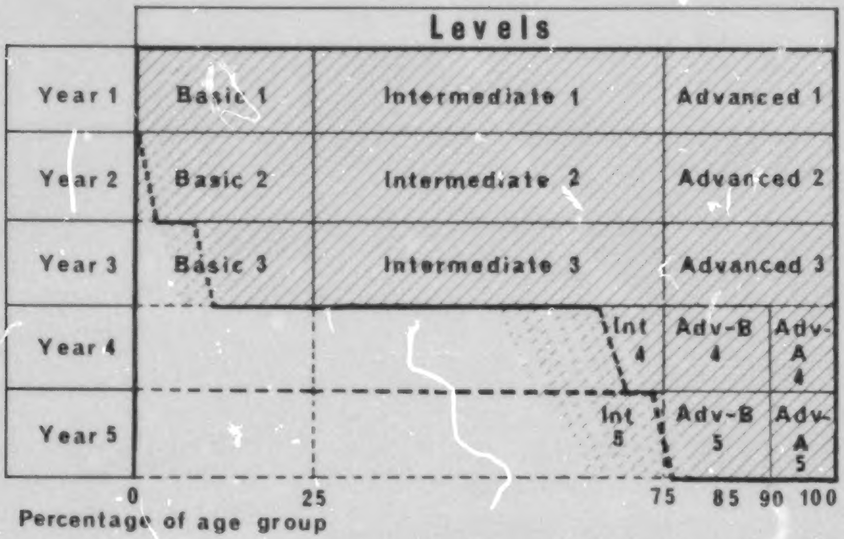
Levels
Year 1
Year 2
Year 3
Year 4
Year 5
Basic 1
Intermediate 1
Advanced 1
Basic 2
Intermediate 2
Advanced 2
Basic 3
Intermediate 3
Advanced 3
Int 4
Adv-B 4
Adv-A 4
Int 5
Adv-B 5
Adv-A 5
0
25
75
85
90
100
Percentage of age group

Figure 12
A MULTI-LEVEL APPROACH TO CURRICULUM DIFFERENTIATION

school with only one First Year class. In our opinion, requiring teachers to provide instruction at more than three levels in a class would be unreasonable in the present circumstances. This in no way interferes with the right of any school to make further provisions for individual differences by establishing more levels or by accelerating within levels.

135. The problems posed in relation to the unit progress approach to the core subjects (paragraph 131) do not apply to other subjects which are being introduced for the first time at high school. For these subjects, variation in the rate of progress through a common course should prove satisfactory. Also, because of the nature of the work, a more individualized approach is possible and this should be facilitated by having smaller classes in these areas.

Recommendation

Individual differences among students should be catered for by the provision of differentiated courses. A multi-level approach is recommended for English, mathematics, science and social studies, but a unit progress approach may prove more appropriate for the other subjects.

Cross-setting and Group Teaching

136. Cross-setting involves the time-tabling of two or more classes for the same subject at the one time so that the class groupings may be formed on the basis of ability in the particular subject. Suppose we consider a typical large high school with a First Year intake of 320 students normally distributed in terms of their ability in English. Assuming that about half of these students (160) are to work at the intermediate level and a quarter (80) at each of the advanced and basic levels the following organizational arrangements can be made using total or partial cross-setting. Similar arrangements would be made independently for each of the other core subjects.

1. Total Cross-setting. With total cross-setting ten English classes and ten teachers of English would be time-tabled at the same time. The following is one way of organizing class groups so that there is only one group in each class.

English Class	No. of Students	Level
1A	26	Advanced
1B	27	Advanced
1C	27	Advanced
1D	40	Intermediate
1E	40	Intermediate
1F	40	Intermediate
1G	40	Intermediate
1H	27	Basic
1I	27	Basic
1J	26	Basic

Here the intermediate classes are bigger than either the advanced or basic. Class sizes could be made equal but there would then be more than one group in two classes as shown below.

English Class	No. of Students	Level
1A	32	Advanced
1B	32	Advanced
1C	16	Advanced
	16	Intermediate
1D	32	Intermediate
1E	32	Intermediate
1F	32	Intermediate
1G	32	Intermediate
1H	16	Intermediate
	16	Basic
1I	32	Basic
1J	32	Basic

The main problem associated with total cross-setting is that it restricts the opportunity for teachers to specialize. No teacher can teach English to more than one class at one year level and many teachers are required to teach English.

2. Partial Cross-setting (2 sections). If the school is divided into two equivalent sections and the classes are cross-set in groups of five, there is more opportunity for teachers to specialize, in that they can teach two English classes at the same year level. The following is one way in which a section could be organized into classes of the same size.

English Class	No. of Students	Level
1A	32	Advanced
1B	8	Advanced
	24	Intermediate
1C	32	Intermediate
1D	24	Intermediate
	8	Basic
1E	32	Basic

In this case, there are two group classes in each section or four in the year. Subdivision of the year into three or more sections enables more specialization of teaching but generates more group classes. In the limit with 10 sections, there is no cross-setting and there are three groups in each class. Criteria other than class size and the number of groups in a class can be applied in organizing classes, but the prime criterion should be that the course on which a student is placed should depend on his achievement in a subject and should not be determined by organizational convenience.

137. Cross-setting is not possible in the small junior high schools which have only one First Year class. For this reason it is necessary for these schools to be more liberally staffed than the larger schools. In smaller classes it should be easier for the teacher to cope with the problems posed by group teaching (See paragraph 129.)

Recommendation

Cross-setting and group teaching offer promise as effective organizational arrangements to facilitate the provision of differentiated instruction, and as such should be introduced in secondary schools.

The Gifted and the Handicapped

138. The gifted and the handicapped pose special problems in that they are not sufficiently numerous for their needs to be met in all schools. Special classes for the handicapped are already established in some schools, and we believe that, in view of the importance of the potential contribution to be made to society by the gifted, their needs should not be overlooked. We would recommend, however, a different approach to that used at present of forming a class of handicapped children

on the basis of an extremely low general ability. Additional staff should be provided in some schools to enable special classes to be formed in specific subject areas at the same time as that subject is cross-set. Students identified by Guidance Branch as gifted or handicapped in any specific subject area would then be allowed to attend schools with these special classes. For their special subject they would attend the special class in that subject. For other subjects they would be integrated into the regular school programme. This proposal reflects a concept of students with gifts or handicaps rather than a blanket labelling of students as gifted or handicapped. This is more consistent with our general proposals on levels and cross-setting, which enable students to be working at different levels in different subjects according to their abilities.

139. The modification of the comprehensive school principle whereby certain Government secondary schools are developing specialties for students with gifts in specific areas represents a move in this direction (See paragraph 20.) However, the number of students being accommodated, as well as the number of subject areas being provided for, is limited at present and further expansion is necessary. For the core subjects, special classes should be formed both for those gifted and for those handicapped in the area. Such provisions would need to be made in about one of every two large secondary schools. Students needing such special attention would then be able to attend these schools. In the other subjects which are taught in smaller classes, special students can receive more individualized attention and there is not the same need for special classes. However, those students with exceptional talents in areas such as art and music do need to attend special schools to be taught by teachers with similar talents. Only a relatively small number of schools providing such specialties should be necessary.

Recommendation

Special provisions should be made for gifted students as well as for the handicapped. Selected schools should provide classes for students with gifts or handicaps in specific subject areas, and in other areas these students should be integrated into the regular school programme.

Intelligence and Achievement

140. A student's achievement depends on his intelligence (or mental ability) and the effort which he makes to learn. His intelligence depends upon an innate capacity due to hereditary factors, and an acquired capacity (what he has learnt) influenced by environmental factors. Also, effort results from utilizing or stimulating the learner's interest, or from an act of will on the part of the learner, or from coercion, or some combination of these factors. As no one appears to be able to measure any of these factors other than by measuring achievement, and as these factors are not readily subject to control, it seems fruitless to attempt to determine to what extent achievement is dependent on each. The best predictor of future success at a

task appears to be past success at the particular task or a similar one. Hence it is considered to be more appropriate to treat students according to their achievements rather than any hypothetical intelligence (or ability). For example, it appears preferable for students to be grouped according to achievement rather than intelligence, whether general ability or specific aptitude. This does not deny the importance of innate capacity or of environmental factors. Indeed every effort should be made to see that environmental conditions are as conducive to learning as possible.

Recommendation

Operational decisions such as the grouping of students should be based on their records of achievement.

Flexibility

141. The concept of a fixed intelligence has led many teachers to think in terms of labels attached to children. For example, a child with a low I.Q. is immediately and permanently thought of as "dull" in all phases of intellect. This stereotype of thought often "freezes" the teacher into a limited and restricted mode of behaviour towards the child, and expectations of his performance which are accepted by the child *. The research evidence of Sontag, Baker and Nelson (1958) and others show that the notion of a fixed I.Q. is untenable (Appendix 10:2-3).

142. The placement of students into courses at different levels involves making discriminations between students who differ very little in terms of their achievement. Errors of measurement and variability in student performance can result in the best students at one level being better than the worst students in the level above. Teachers should recognize these facts and provide enrichment and modification within each level so that the demands made on the better students in one level approximate those being made on the weaker students in the level above. Students should have the opportunity to move from one level to another in keeping with their achievement.

143. Measures should be taken to facilitate movement between levels, particularly upward transfer. Cross-setting facilitates this movement by making it possible for a student to change levels in one subject without having to change in other subjects. A measure which could prove helpful in the case of upward transfers would be the provision of adjustment classes in which very small numbers of promising and willing students could be given additional help in adjusting to classes at higher levels. It is recognized that upward transfer becomes progressively more difficult

* *Note:* This phenomenon, often referred to as "the self-fulfilling prophecy" was demonstrated convincingly in an experiment conducted recently by Rosenthal and Jacobson and reported in *The Scientific American*, April, 1968. Teachers were told that certain students had been identified as "late bloomers" by special tests designed to predict intellectual gain. In fact, a standard intelligence test with which the teachers were unfamiliar was used, and the so-called "late bloomers" were selected randomly without reference to the test results. When re-tested for intellectual gain at a later date, those students from whom teachers expected greater intellectual growth showed such gains.

as courses proceed and it may be necessary at times for students wishing to move to a higher level to repeat a year.

Recommendation

Important decisions such as the course placement of students should be regarded as flexible, being subject to change in the light of future achievement.

The Achievement Certificate Proposals (see Appendix 8)

144. The Achievement Certificate proposals in relation to school organization make much better provisions for individual differences in student ability than is the case in schools now. In English and social studies at present, average and above-average students all take the same course. The Achievement Certificate proposals provide appropriate courses for each group. In science, at present, above-average students take an advanced level course (Science B) and an intermediate level course (Science A). These proposals will provide above-average students in science with a course which is advanced in all respects. The intermediate course will provide students of average ability with an expanded course in science which will include more physical science but at an appropriate level. Basic Level Science will make available a course in science specially designed to suit the below-average student; such a course has not been generally available before. The four levels in mathematics provide greater course differentiation than the three levels which we have suggested but will necessitate more group teaching, particularly in smaller schools. The students who benefit from the formation of the extra group are those of average ability, who are provided with an ordinary and an elementary level instead of an intermediate level course. The approach adopted has been directed towards dividing the State age group population into equal sized groups rather than groups with equal ability ranges. However, the four levels will match the existing situation quite well as shown in Table 27. It is also noted that courses specifically designed for students of below average ability in mathematics will be available.

TABLE 27
EXISTING AND PROPOSED COURSES IN MATHEMATICS
(W.A., 1968)

% of Age Group	Achievement Certificate	Junior Certificate
25	Mathematics—Advanced	Mathematics II and III
25	Mathematics—Ordinary	Mathematics I
25	Mathematics—Elementary	Elementary Mathematics
25	Mathematics—Basic	—

145. Student interest and needs are also much better accommodated. Students will be able to select more freely from among the variety of options which are made available at a school, instead of being required to take one of a few specified courses as at present. Individual student time-tables will be able to vary considerably as illustrated by the examples of possible student time-tables provided on page 5 of Appendix 8. In particular it is noted that academically oriented students will be able to elect to study subjects such as typing and transport. In the options area individual differences in ability are appropriately catered for with the unit progress approach, which allows students to progress through common courses at different rates.

146. Other commendable features of the proposals are the built-in provisions to allow for the late maturer or for the student whose achievement improves because of increasing motivation. These include adjustment classes in which small groups of students would be given additional help in bridging the gap from one level to another, the equal period allocations at different levels, the availability of special text materials, and the annual re-administration of placement tests. The advantages inherent in the suggestions on time-tabling (see Appendix 8, pages 6-8) are also recognized.

CHAPTER 7

THE STRUCTURE OF SECONDARY EDUCATION

147. As explained in Chapter 3, secondary schools in Western Australia provide a course of five years' duration following a primary course of seven years. This 7-5 (or 7-3-2) structure is also to be found in two other Australian states (S.A. and Qld) and in Scotland. Elsewhere other patterns are adopted. For example, in the other Australian States, there is a 6-6 (or 6-4-2) structure, in England a 6-7 (or 6-5-2) structure, and in the United States 6-3-3 and 8-4 structures are common. We have investigated the advantages and disadvantages of the various structures in order to determine the most desirable points at which transfer from primary to secondary schools and from secondary schools to tertiary institutions should take place. The relevant issues of compulsory education, promotion policies and procedures to facilitate transition were also examined, as were the present Departmental policies in relation to the establishment of schools.

Compulsory Education

148. The growing importance of education in the world of today has already been acknowledged in Chapter 4 and we believe that strenuous efforts should be made to encourage students to stay at school as long as possible, but we do not consider that the school leaving age should be raised at present. Increases in retention rates beyond the compulsory attendance age are already in evidence (see paragraph 27), and we are confident that these improvements would be further stimulated by the recommendations made in this report, in particular by those related to courses of study. However, we are of the opinion that raising the school leaving age in anticipation of these developments would be premature. In this regard we have noted arguments advanced by Professor Dobinson from Reading University, who warned of dangers in the British Government's decision to raise the school leaving age to 16 in 1970, and advised postponement until 1975 to enable further investigations to be made (48). Further to this point, the British Government has now decided to delay implementation of its proposals (49).

Recommendation

The age of compulsory attendance (15 plus) should not be raised at present but every effort should be made to encourage students to stay at school longer by providing courses which satisfy their requirements.

Promotion Policy

149. The Education Department has adopted a policy of chronological promotion (see paragraph 24), which appears to be operating reasonably satisfactorily. However, we feel that there is a need for a more flexible interpretation of the policy for students of well-above-average ability. The Committee came to this decision as a result of a study of the data on the maturation of children presented in Chapter 2 of the Plowden Report, where it was stated that "there are a minority of children who, in all aspects of development, are so ahead of their contemporaries that they ought to work with older children" (28:147). The Plowden National Survey showed only 44 under-age and 10 over-age transfers to secondary schools out of a total of some 20,000 children. This represents less flexibility than is the case in W.A. (see paragraph 24), but even so their comment that this "small amount of flexibility . . . cannot reflect accurately the wide variations in maturity which exist between individual children" remains pertinent in relation to early transfers, particularly considering their recommendation that "late transfers should be fewer than early" (28:147). In all cases of under-age and over-age promotion, decisions should be made individually in consultation with parents on the basis of physical, emotional and social as well as intellectual development.

Recommendation

In general the policy of chronological promotion of students through primary school and into secondary school should continue, but there should be sufficient flexibility to allow for some acceleration as well as retardation. These decisions should be made on the basis of physical, emotional and social as well as intellectual development and any acceleration or retardation should take place as far as possible in the lower primary grades.

The Age of Transfer from Primary to Secondary Schools

150. The Committee of Inquiry considered the question of the point of transfer from primary to secondary schools and reported that it did not feel justified at that time in recommending any alteration to the existing pattern, but indicated that a closer investigation was needed "to determine whether some of the studies now commenced in secondary schools should not begin earlier by transferring them to primary schools, or by shortening the length of the primary stage" (3:18).

151. In recent years detailed investigations into the age of transfer from primary to secondary schooling have been made in Scotland and in England. The report of the committee set up by the Scottish Council for Research in Education was published in 1966, and a year later in England the matter was reported on by the

Central Advisory Council for Education (the Plowden Report). In Scotland, where the age of transfer is twelve, the report concluded:

> The answer to the question "what is the appropriate age of transfer" must be that there is no one correct age. . . . The transition from primary to secondary education should extend over the whole period from age ten to age thirteen. These years should be regarded as a transitional period, during which there is a gradual change in curriculum and style of teaching. Prescribing age limits within this period for a change of schools is justifiable for administrative reasons, not on psychological grounds
>
> (50:89)

Scotland has retained twelve as the age of transfer, while the Plowden Report, reasoning on similar lines, recommended raising the age from eleven to twelve in England (28:141-146).

152. The inclusion of Grade 7 pupils in secondary schools in Western Australia would result in a substantial increase in the size of the large schools. For this reason, and in view of the results of the Scottish and English investigations mentioned above, there does not appear to be any good reason to change the present 7-5 pattern of educational organization in this State.

Recommendation

The age of transfer from primary to secondary schools should continue to be twelve plus as at present.

Transition from Primary to Secondary Schools

153. The vital factor is not the age of transfer from primary to secondary schools but the process of transition. The final years of primary and the early years of secondary schooling should be planned as transitional years during which there should be gradual changes in curriculum and teaching procedures. We have considered the establishment of "middle schools" as advocated in the Plowden Report but find the same criticism of that proposal as found of the New Zealand "intermediate schools" in the Wyndham Report (51). It creates two points of articulation where one existed previously and it is at these points that most of the difficulties of transition occur. The countervailing action which we recommend is that efforts be made to ensure continuity between the curricula of primary and secondary schools, and that there should be some cross-setting or cross-grading, either to form more homogeneous subject groups, or to enable some measure of specialization in the upper primary grades as well as in the early secondary years. This should accustom the student to having more than one teacher in the familiar environment of the primary school rather than having to cope with this change at the same time as adjusting to a new school. This transition could also be effected by form teaching in First Year as at present but this restricts the opportunity for specialist teaching. There are, however, other forces at work making further specialization necessary not only at the secondary but also at the primary level. Current curriculum reforms are providing children with a deeper understanding of

the various subject areas at an earlier age than was ever the case previously. A case in point is the so-called "new mathematics". This greater depth is in itself making heavier demands on teachers, but the ever-accelerating rate of change in the curriculum area and in the area of teaching methodology aggravates the situation even further.

154. As a measure to overcome the problems associated with articulation between primary and secondary education some teachers could move from primary schools to secondary schools with pupils when they transfer and return to primary schools in the following year. This would have the additional advantage of providing these teachers with the benefits of supervision by the subject senior masters in secondary schools.

155. The Interim Report of the Victorian Education Department's Curriculum Advisory Board (Secondary) suggests that "some modification of the 'home-room situation' in Grades 5 and 6 of primary school might be considered", but also recommends "a reduction in the number of teachers teaching any one first or second form class[9] in secondary schools", seeing in this the advantage of "inbuilt pastoral care" (51). New South Wales has taken a similar approach in the first secondary school year (Grade 7) recommending "as much as possible of the teaching . . . on the basis of class groups rather than subjects". In the subsequent years, however, there is specialization and separate periods are set aside specifically for a special pastoral care programme.

156. The Committee is cognizant of the need for pastoral care but form teaching does not necessarily provide it automatically. We favour the assignment of a pastoral care teacher to each class group. This teacher would accept responsibility for the welfare of the students in his group while he and they remain in the school. School time should be specifically allocated to a pastoral care programme. For a fuller discussion of pastoral care and moral education, see paragraphs 97-104.

157. It is interesting to note a research report from Victoria showing that students in the first form do not appear to be worried by being taught by several teachers instead of one (53:3). This report also contains a useful analysis of worries affecting students when first entering a secondary school. Useful suggestions made include "the advisability of establishing a connection with the school prior to transition", the need for a "clear statement on student responsibilities and the implementation of consistent staff policy", and the implementation of an orientation programme (53:2 and 6). In concluding these comments on transition we cannot emphasize too strongly that the responsibility to see that it proceeds smoothly rests with both primary and secondary schools and liaison must be maintained between them.

Recommendation

The final years of primary and the early years of secondary schooling should be planned as transitional years, during which time there should be gradual changes in curriculum and teaching procedures.

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[9] First form in Victoria is equivalent to Grade 7 in W.A.

Transition from Secondary School to Employment or Further Education

158. The major function of the secondary schools should be to provide all students with a sound general education. Nevertheless, provision must be made for smooth transition between one phase of education and the next. We are of the opinion that the final year of a student's secondary education is soon enough for his courses to be oriented to employment or further education of a specialized type. To do otherwise is to involve students in earlier decisions on future careers than is necessary or desirable. For some students this vocationally oriented final year may be Third Year but we hope that for increasing numbers it will be Fourth or Fifth Year.

Recommendation

The final year of a student's secondary schooling should be oriented to the next phase of his career, whether this be employment or further full-time education.

159. **Pre-vocational Education.** The majority of students leaving secondary schools move directly into full-time employment. Their pre-vocational needs deserve more attention than they have enjoyed in the past. Since the percentage of the work force engaged in any one occupation is small,[10] courses directed towards specific occupations would be too numerous to be provided in secondary schools and may more appropriately be left to the technical schools. More generalized pre-vocational courses which develop skills and provide introductory experiences for broad groupings of occupations are considered more appropriate for students in secondary schools. Courses such as Retail Trade and Transport (see Appendix 7) are in this category and we are favourably impressed with their usefulness, but they need to be expanded to provide for a broader spectrum of occupations. Fourth Year terminal courses (see paragraph 47) and work experience programmes (see paragraphs 48-49) also make valuable contributions to the pre-vocational needs of students and should also be developed further.

Recommendation

Investigations into the pre-vocational needs of boys and girls should be continued with a view to extending the courses available.

160. **Preparation for Tertiary Education.** Adequate provision should be made for smooth transition from secondary schools to tertiary institutions. Although in the minority, these students still represent a very important sector of the student population. There should be continuity between the curricula and methods of secondary and tertiary institutions in the same way as there should be between primary and secondary schools. Here again responsibilities in this regard do not reside on either side of the point of articulation, and liaison between appropriate authorities is essential. Secondary schools should contribute by giving students a greater measure of self-responsibility than at present.

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[10] For example, the percentage of the male work force employed in the building trades is about 7·3%, of whom about 2·8% are carpenters, 1·2% painters, 1·0% plumbers and 0·5% bricklayers with smaller percentages engaged in other trades (18:272-274).

Recommendation

Secondary schools should contribute to a smoother transition from secondary to tertiary education by giving students a greater measure of self-responsibility, particularly in the final year.

The Length of Secondary Education

161. The major arguments in favour of extending secondary education to a sixth year stem from the high first year university failure rates. Some people see improved preparation in terms of subject matter mastery and greater maturity of students as the advantages which should accrue from a sixth year. This is true, but a sixth year for all would not account for the great variability which exists among students. As pointed out in the 1963 Report, "many students from the secondary schools can already cope well with University requirements" (3:30). This point of view is supported in the report of a workshop held at the University of W.A. in August, 1963, where it is stated that "between 50-60% of present students appear to make a reasonable transition from school to University" (54:34). This report also implies that, with more help and guidance, as well as better first-year teaching and more frequent revision work, this percentage could be increased. For this reason, and because of economic considerations, we believe that a flexible approach is warranted. There should be no requirement that all students spend a sixth year in secondary schools in order to matriculate. However, provision for a sixth year should be made for those students with university potential, whose academic performance or level of maturity is such as to militate against immediate success in a tertiary institution.

162. The Robertson Report contended that "the present five-year course could, and should, be improved before attempting an extension of the secondary stage" (3:28). We find that their proposals to improve courses have proved difficult to implement and progress to date has been limited (See paragraph 59.) Nevertheless, we agree with their contention and trust that such improvements will be effected by the implementation of the recommendations which are contained in this report.

Recommendation

There should be NO requirement that all students spend a sixth year in secondary schools in order to matriculate. However, provision for a sixth year should be made for that minority of students with university potential, whose academic performance or level of maturity is such as to militate against immediate success in a tertiary institution.

Secondary Education for a Dispersed Community

163. The establishment of junior high schools in country areas has served a very useful purpose in increasing the educational opportunities for children who live in the less populous areas of the State. It is not possible for these very small schools

to provide all the facilities or courses which can be made available in larger schools, even when they are more liberally staffed. For example, pre-vocational courses cannot be made available because of the very small numbers of students who would be involved, the cost of establishing facilities which would receive little use and the non-availability of specialist staff. For this reason students should be able to attend larger schools to obtain pre-vocational training as they do now to undertake Fourth and Fifth Year courses or courses in agricultural education. Boarding allowances should be made available to such students and hostel accommodation should be increased.

Recommendation

Where adequate facilities are not available locally, students should be helped to attend larger schools by the payment of boarding allowances. This will necessitate some expansion of existing hostel accommodation.

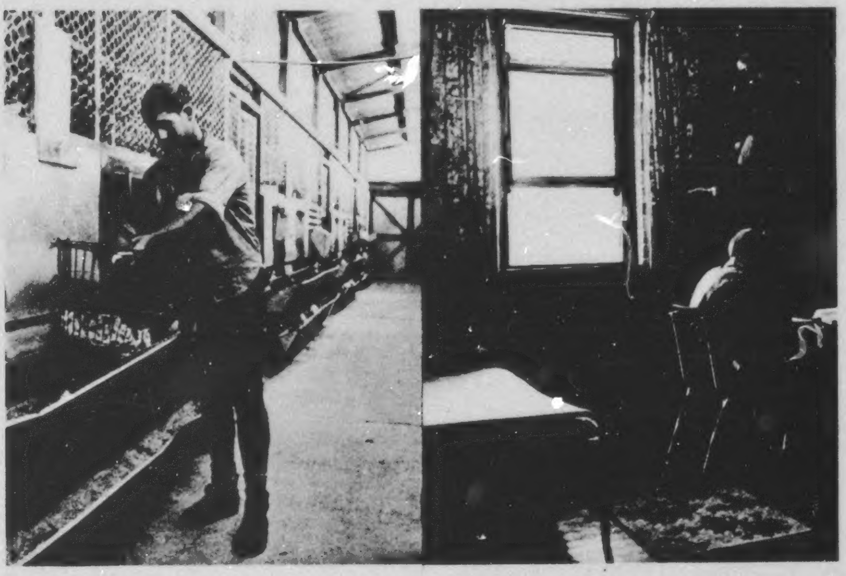


Plate 14

This boy has to live away from home to obtain his pre-vocational training in agriculture. More facilities of the type shown should be made available for other students who need to live away from home to obtain their education (paragraph 163).

CHAPTER 8

EXAMINATIONS AND CERTIFICATION

164. Most students who complete three years of secondary education in Western Australia seek a Junior Certificate awarded on the results of examinations conducted by an external examining body, the Public Examinations Board. The influence on secondary education of such external examinations has been discussed fully in many places, notably in the reports of committees of educational inquiry which have preceded this one.

External Examinations

165. In Western Australia, an extensive discussion of external examinations was given in *The Secondary School Curriculum* (4:27-29 and Appendixes 2 and 3). In England, the *Norwood Report* (1941) and the *Beloe Report* (1960) found fault with the principle of external examining at the Third Year secondary school level, the *Norwood Report* going so far as to recommend the replacement of the external examination by an internal examination under the control of teachers. The *Beloe Report* rather favoured delaying the external examination until candidates "have reached an age, and a stage in their education when they have attained sufficient knowledge and understanding to justify their being tested by written examination," and believed "the appropriate stage is the end of a fifth year course, when candidates will be about 16" (4:61).

166. From Scotland, a discussion of external examinations to be found in the *Report of the Advisory Council on Education in Scotland: Secondary Education (1947)*—the Fyfe Report (55)—is relevant to the current situation in Western Australia and warrants notice here. Though conceding that there is a period in the development of a secondary education system when external examinations provide a "steadying influence and a salutary stimulus on the teachers, while at the same time they help to protect the children against the mistakes of ignorance, the hesitancies of inexperience and the vagaries of individual temperament", this report argues that in a system which has attained adult stature, teachers should be invited "to show such initiative, inspirational leadership and bold experiment as go ill with the continued dominance of the external examination" (55:43). The following

extracts represent a succinct summary of the influence of external examinations on education.

> The influence of examinations is three-fold. It affects the treatment of the examinable subjects themselves, tending always to exalt the written above the spoken, to magnify memory and mastery of fact at the expense of understanding and liveliness of mind. It depresses the status of the non-examinable, so that the aesthetic and creative side of education, with all its possibilities for human satisfaction and cultural enrichment, remains largely undeveloped and poorly esteemed. And lastly, the examination which began as a means, becomes for many the end itself. In the atmosphere created by this preoccupation with examination success, it is difficult to think nobly of education, to see in it the endless quest of man's preparation for either society or solitude.
>
> . . . what matters supremely is not the precise amount of factual knowledge young people have acquired at a given age, but whether they are leaving school with alert brains and unblunted curiosity, responsive to excellence of every kind and possessed of such an abiding interest in the things of the mind as will keep them learning and wanting to learn all life long.
>
> So far from promoting this high ideal, the external examination is, in our opinion, one of the greatest obstacles to its realisation.
>
> (55:43-44)

167. Another aspect of this issue is the long recognized unreliability of external examinations which employ large teams of loosely co-ordinated markers. As long ago as 1935, Hartog and Rhodes criticized the external examinations system for its unreliability. Their report *An Examination of Examinations* (56) uncovered inadequacies in examining methods many of which are essentially unchanged today. Though methods of examining could be improved, this would still not rid secondary education of the serious constraint on curriculum reform which an external examination system imposes.

168. External examinations tend to distort the aims of secondary education. The purpose of an assessment system in secondary education ought to be to determine the extent to which educational goals have been achieved, the system in Western Australia at present tends to work in reverse in the sense that the educational goals are determined by the assessment system.

Internal Assessment

169. What is known about the development of young people indicates that they should proceed with their education at rates which vary with each individual, dependent not only upon chronological age, but also upon mental and emotional maturity, aptitudes and interests. No arbitrary period of time should be set down as appropriate for all students in covering a given course of work. Decisions about the timing, standard and content of work appropriate to a particular student should be made within the school at the teacher-student level, where adequate knowledge and understanding of his achievement and needs are likely to be available. This also applies to assessment. Only by accepting the responsibility for the

evaluation of their own students can schools provide the flexibility that is necessary. Assessment should not be based on any arbitrary time divisions as is the case at present with the three and five year certificates, but should be made when educationally appropriate.

170. In the Fyfe Report confidence was expressed in the ability of teachers to rank pupils accurately but not in the comparability of their standards or spread of marks. They stated:

> The results of research and the experience of examining bodies show that teachers are, as a rule, very accurate in placing their pupils in an order of merit; indeed we are satisfied that in this respect the teacher's grading is more trustworthy than any other (55:44-45).

A procedure whereby an external examination is used to scale teachers' marks was recommended for use in Scotland. To date, the implementation of this proposal has been limited to the placement of students in certificate or non-certificate classes on entry to high schools; and, to quote Hunter, "secondary education continued to be dominated by the Leaving Certificate examination" (58:92). We are convinced that if schools are to be freed from the shackles of external examinations, then such examinations must be discontinued at all levels, Leaving as well as Junior.

Cessation of External Examinations

171. Students who have already embarked upon courses must be able to complete them and schools need notice to have time to adapt their courses to the new situation. Consequently, external examinations cannot be abolished immediately, but, as from 1970, students commencing secondary education should no longer be subjected to the restraints imposed by external examinations. This means that Junior examinations should be discontinued after 1971 and Leaving examinations after 1973.

Recommendation

Because of their fallibility and the restraints which they place on curricula and teaching methods, external examinations should be discontinued and replaced by internal school assessments. The last Junior examinations should be conducted in 1971 and the last Leaving examinations in 1973.

Variation of Standards

172. Standards between one school and another and from one year to another vary so much as to render certification based on an unmoderated school assessment a chancy affair. Variation among schools is shown in the figures obtained for reading comprehension in a survey of Government secondary schools conducted in 1968. An extract from these figures is shown in Table 28. The complete set of figures is shown in Appendix 11. It is apparent that the First Year population of School 31 has achieved a much higher result than the average for the State. School

40 shows a result almost equalling the State average; and School 39 has performed below the State average.

TABLE 28

PERCENTAGE DISTRIBUTION OF FIRST YEAR STUDENTS IN GOVERNMENT SECONDARY SCHOOLS ACCORDING TO APPROXIMATE PERCENTILE RANKING OF SCORES ON READING COMPREHENSION TEST FOR WEST AUSTRALIAN HIGH SCHOOLS, FORM A (W.A., 1968)

School (Ranked by Size of First Year Population)	First Year Population	Percentile Rankings (Approx.)		
		100-71	70-31	30-1
		%	%	%
31	200	49	31	20
39	140	13	44	42
40	130	30	42	28
State	11,500	30	40	30

173. Variation of standard can also be wide within the one school from one year to the next. This is demonstrated by the figures in Table 29, extracted from a complete table which appears in full in Appendix 12. These figures are of pass rates in the Junior examination. They apply to Mathematics III (Geometry and Trigonometry), and show what percentage of the First Year intake subsequently passed this subject in the Junior examination three years later. This subject is recognized to be difficult and pass rates are not determined by statistical considerations: efforts are made to impose as far as possible an absolute standard. School 28 offers an example of a school where the standards of achievement may have fallen in this subject. The sharp recovery in 1967 is indicative of the sort of fluctuation in standard that can occur. School 12 offers an example of a school where the standard of achievement may have risen, and in School 34 there may have been little variation.

Comparability

174. The figures in Table 27 and Table 28 indicate the variation in achievement that exists and can be expected to continue in schools throughout the State. These figures show why a school cannot assume that it has any standard distribution of achievement or even that performance in the school will be consistent from year to year. The difficulty of making reliable assessments comparable from school to school has plagued the schools involved in the Achievement Certificate project. There is a need in a system of internal assessment, for procedures by which the

TABLE 29

MATHEMATICS III (GEOMETRY AND TRIGONOMETRY)
SCHOOLS WITH FIRST YEAR INTAKE OVER 100
PERCENTAGE OF FIRST YEAR INTAKE PASSING JUNIOR THREE YEARS LATER

School	First Year Intake (to nearest 10) 1965	1964	1965	1966	1967	Range
12	390	12	14	19	22	10
28	150	22	16	8	28	20
34	120	18	19	17	20	3
Average (of 39 schools)	270	21	22	19	22	9
Range (of 39 schools)	100-500	10-34	9-39	8-31	12-40	3-20

assessment of students from one school to another for purposes of certification can be made comparable.

175. If employers and those demanding minimum standards of achievement as entrance qualifications for vocational training programmes and further education can find no reliable guide in the issued certificate, then they will soon resort to setting their own entrance examinations and schools will find their efforts to provide general education again distorted. That such a multiplicity of examinations is likely to develop in response to the needs of employers and others for a comparable certificate is suggested by the phenomenon noted in *A Handbook for Moderators of the Certificate of Secondary Education* (57) in England. Mather, France and Sare state that

> As early as 1868 we hear the first rumblings as to the dangers of too many examinations. The Report of the Schools Inquiry Commission emphasized the dangers of divergent examinations rendering ineffective the organization of a school. A first ever proposal to set up a statutory council to control examinations in secondary schools was turned down as an encroachment by the powers of the state. Examinations proliferated. In 1873 came the Oxford and Cambridge Schools Examination Board; in 1896, the Central Welsh Board. By 1903 were added the London University Extension Board and the Northern Universities Joint Matriculation Board. In 1911 arrived the University of Bristol School Examinations Board. None of these Boards had the same requirements and conditions. All their examinations were taken in the secondary school.

> Side by side with this development of a university controlled certification system there developed examinations for the working man whose education had been mostly obtained outside the school system. In 1847 the Union of Lancashire and Cheshire Institutes' examinations appeared; in 1856 the Union of Educational Institutions' examinations—all names now well-known as mid-twentieth century secondary school examining bodies.
>
> Small wonder that the 1911 Report of the Consultative Committee on Examinations in Secondary Schools refers to the dangers of "the existing *multiplicity* of external examinations and the need for concerted action. In 1868 a proliferation was left to proliferate further; in 1911 a "multiplicity", but this time to be controlled following this wide ranging and cogent report . . . (57:11-12)
>
> In 1911 concern had been shown for the multiplicity of examinations serving the needs of a small minority. In 1960 concern had been shown for the multiplicity of examinations serving the needs—potentially—of the much greater number of average pupils.
>
> If the pattern is not to repeat itself in the year 2011 machinery must be set up which is in permanent and close touch with the schools and society, and which can react swiftly to the need for change and development in a dynamically changing society.
>
> Unless such machinery is devised it is at least theoretically possible that some young man now in the cradle may be called upon to prepare a report on the multiplicity of tests available to those pupils of secondary age now known as the Newsom pupils, in honour of the Newsom Report, *Half our Future* prepared for the Central Advisory Council for Education by a committee under the chairmanship of Sir John Newsom. (57:19)

176. In order to establish satisfactory comparability of standards among schools, a board should be appointed with this responsibility. Measures which should be taken by this board should include the provision of standardized tests and the appointment of moderators.

Board of Secondary Education

177. A Board of Secondary Education should be appointed to exercise a general overview of the curricula of all secondary schools in Western Australia and to be responsible for the award of certificates of secondary education. The Board should be an autonomous body empowered to receive moneys and incur expenditure to acquire premises, engage staff and perform such other duties as fall within its ambit.

178. **Curriculum Overview.** The Board would need to appoint committees to act in an advisory capacity in relation to such matters as the construction of subject syllabuses, broadly interpreted as including the following elements: objectives; teaching methods; selection and organization of content; and, evaluation techniques. It would also be necessary for the board to approve syllabuses submitted by individual schools or groups of schools; and the Board would have to maintain a close liaison with authorities responsible for primary education and further education.

179. **Certification.** Assessment of pupil achievement would be essentially a school responsibility. Schools would submit their assessments of student achievement on approved courses to the Board to enable certificates to be awarded. To help obtain an acceptable level of comparability among certificates awarded to students attending different schools, placement tests in selected subject areas might be administered soon after the entry of students to secondary schools. In addition, standardized tests approved by the Board could be administered as needed from time to time to secondary students. Moderators appointed by the Board would visit schools and offer advice and satisfy themselves regarding assessment procedures.

180. The standardized tests to be made available by the Board would be similar to the Commonwealth Secondary Scholarship Examinations (C.S.S.E.) in that they would emphasize the understanding of concepts rather than knowledge of specific content, and in that as far as possible they would be of the multiple-choice objective type to ensure ease and reliability of marking. These tests would, however, need to be less difficult than the C.S.S.E. tests so as to be able to cater for a broader spectrum of students. Alternatively, tests of varying levels of difficulty could be provided for students working at different levels. Also, because they would be designed specifically for use in Western Australia, they could assume knowledge common to all approved courses and hence be more specifically achievement oriented. The tests could also be sequential in nature and in this respect as well as others resemble the Sequential Tests of Educational Progress (the STEP tests) conducted by the Educational Testing Service in the United States.

181. Within the schools there would be freedom to develop assessment procedures closely linked with the aims of courses. These procedures would be able to aim specifically at assessing the important but non-examinable outcomes of courses of work. For example, in science, the extent to which laboratory work does promote genuine scientific attitudes such as honest and accurate observation of what does happen and clear reporting of the study; and again, in English, the attitudes to literature generated by a reading course and the extent to which a student's free and unsupervised choice of reading changes as a result of the work, are important but unexaminable outcomes of learning activities, the assessment of which would be worth achieving.

Composition of the Board

182. The Board should consist of the following 25-27 members appointed for three years:

- (*a*) The Director-General of Education (ex-officio) or his nominee.
- (*b*) Four members from the Administrative Staff of the Education Department appointed by the Director-General of Education.
- (*c*) Five members representative of the Government secondary schools appointed by the Director-General of Education, one of whom should be the nominee of the Teachers' Union.

(*d*) The Director of Catholic Education (ex-officio) or his nominee.
(*e*) Five members, representative of the non-Government secondary schools appointed by the Association of Independent Schools of Western Australia.
(*f*) Three members, representative of the University of Western Australia appointed by the Senate.
(*g*) One member, representative of the Western Australian Institute of Technology appointed by the Council.
(*h*) Four members representative of the community appointed by the Minister for Education. These members would be men or women chosen for their personal calibre, who, while not directly representing any particular bodies, would be able to speak for a wide variety of community interests.
(*i*) The Director of the Board of Secondary Education.
(*j*) Up to two members recommended by the Board to be appointed by the Minister for Education.

The Director-General of Education or a member nominated by him should be Chairman.

Executive Staff

183. It is envisaged that the permanent executive staff of the Board would need to consist of a director and clerical staff, and perhaps a small research and test construction staff. Education Department staff might also be made available as needed to act as executive officers for the subject syllabus committees and other committees appointed by the Board. In addition, panels of moderators selected from senior staff of the Education Department, the Independent Schools and the Faculty of Education of the University of Western Australia might be nominated for secondment from their regular duties for such periods as they could be made available, their travelling and accommodation expenses being paid by the Board.

Recommendation

A Board to be known as the Board of Secondary Education should be established to exercise a general overview of the secondary curriculum and to be responsible for the award of certificates of secondary education based on internal school assessments. Measures taken by the Board to ensure satisfactory comparability of standards among schools should include the provision of standardized tests and the appointment of moderators.

Matriculation

184. The success of the Commonwealth Secondary Scholarship Examinations augurs well for the future success of the Tertiary Education Entrance Project which was recently initiated. We are hopeful that some combination of school

assessments and the results of such an examination will enable tertiary institutions to select students to their own satisfaction without imposing the undesirable restraints of an external examination system of the present type on secondary schools. Discussions should be entered into between the Board of Secondary Education and authorities responsible for tertiary institutions so that this aim may be achieved.

Recommendation

Discussions should be entered into by the Board of Secondary Education and authorities responsible for tertiary institutions to establish satisfactory entrance requirements.

CHAPTER 9

SOME FURTHER COMMENTS

185. One of the implications to be derived from our knowledge of the process of learning is that learning cannot go forward in a vacuum. This means that children must have access to information not only from the teacher but also from books and other learning resources.

The Teacher

186. The teacher is undoubtedly the most important learning resource which can be made available to students. Not only does the teacher supply information but also he is responsive to the needs of students and adaptable to changing circumstances. There is no technological substitute for the human relationship between teacher and student. In the long run the quality of education will depend on the quality of the teachers in the schools and every effort must be made to recruit persons of as high a quality as possible and to provide them with the best possible training. However, there is a limit to the number of persons suited by academic achievement and temperament to teaching and there are competing agencies which also have legitimate demands on the manpower available.

187. The Committee recognizes the important role played by teachers in the introduction of new teaching methods or organization into the school. Some of the recommendations in this report will rely heavily on teachers for their implementation. It will be the task of teachers and administrators in Government and non-Government schools to work together to effect the changes in such a way that the students can derive the benefits envisaged without undue strain being placed on any one section of the teaching profession.

188. The full implications of this report for teacher education are such as to warrant further detailed investigation by the responsible authorities. In particular we envisage considerable changes in the role of the teacher. He should become less a dispenser of information and more a person who structures learning situations and guides learning activities. He is likely to be able to specialize more in relation to the subjects which he will be required to teach, but will need to have a better understanding of the nature of adolescence and the process of learning. He will also

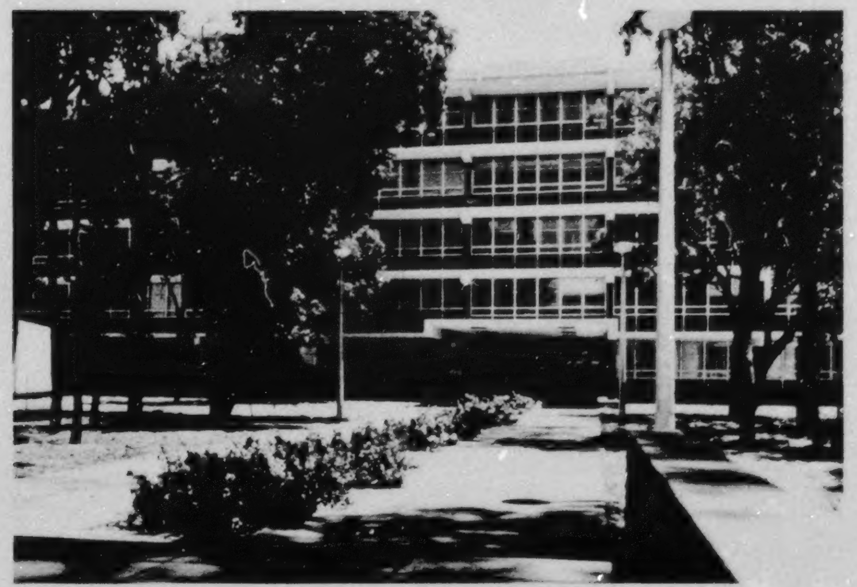


Plate 15

The Secondary Teachers' College was officially opened in 1968, after having begun in temporary quarters provided by the University in the previous year. It is the first institution in Western Australia to be concerned solely with the preparation of secondary school teachers, and is closely linked with the University and in certain respects with the Western Australian Institute of Technology. The changing role of the teacher in the secondary schools of tomorrow will make heavier demands on the pre-service and in-service education of teachers (paragraph 188).

need to be able to function as part of a teaching team and take advantage of the opportunities being provided by advances in educational technology. He will need to grow professionally so as to become more independent and accept more responsibility. For example, the abolition of external examinations will mean that teachers must accept responsibility for the evaluation of their students. Such progress will depend on adequately prepared teachers. This will require adequate programmes for pre-service and in-service education.

The School as a Learning Resource Centre

189. The provision of adequate resources helps teachers carry out their duties more effectively. These resources include buildings and facilities, instructional materials and educational technology. While recognizing the value of these resource materials, the Committee also appreciated the challenge to school authorities, and to teachers, involved in the provision of them.

190. **Buildings and Facilities.** A well equipped secondary school includes a library, science laboratories, manual arts and home economics facilities, gymnasiums and sports grounds. Art studios and other specialist rooms are also desirable and the

Plate 16

Libraries such as this are important resource centres for students. Learning depends on input, and what students can learn should not be restricted to what their teachers know (paragraph 190).

Plate 17

Built with the aid of Commonwealth funds, this lecture theatre seats 112 students and is fitted with television, 16 mm. and 35 mm. projectors, overhead projection and high fidelity sound equipment. A large demonstration bench is supplied with water, gas and electricity of variable voltage. Secondary education today is benefiting from the provision of such improved facilities (paragraph 190).

Plate 18a

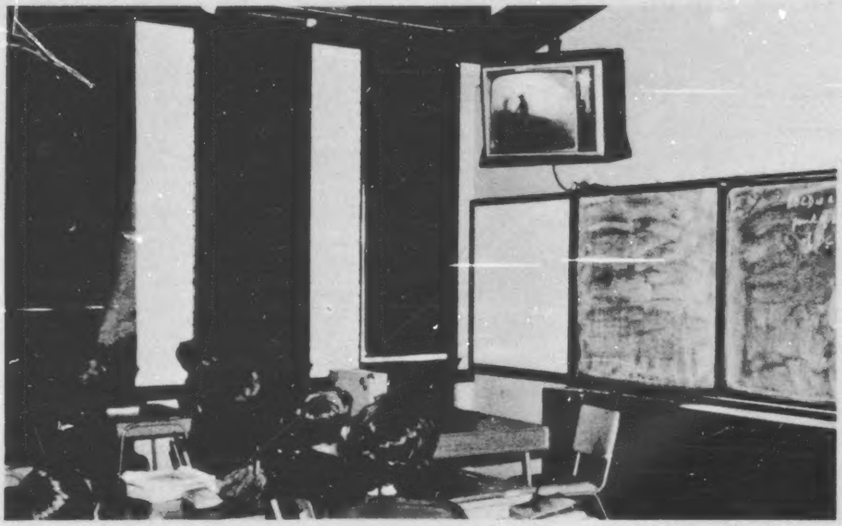


Plate 18b

Educational technology is making an increasingly important contribution to education. In Plate 18*a* students are shown studying a foreign language in a language laboratory. This type of equipment enables each student to work more independently, recording and listening to his own pronunciation and comparing it with that of an expert. In Plate 18*b* students are shown watching a social studies lesson on television. In this way, they are able to obtain a better understanding of the world in which they live than would be possible if they had to rely on verbal descriptions (paragraph 191).

Committee noted that many of these facilities are already provided in the secondary schools of this State and that the appropriate authorities were introducing those that were lacking as resources became available. It is hoped that this trend will continue.

191. **Educational Technology.** Educational technology is making an increasingly important contribution to education. Projectors, tape recorders (including their use in language laboratories), television (closed circuit, video-tape and broadcast), radio, telephones, duplicators, photocopying machines, teaching machines and computers would all appear to have a useful place in the secondary school of the future.

192. **Instructional Materials.** Written course materials in the form of textbooks and reference books have long served a useful purpose in secondary schools and they are becoming increasingly important and more diverse in form. Textbooks need to be supplemented by teachers' guides and test materials. Programmed instruction also offers promise as a means of individualizing instruction. Educational technology can only facilitate instruction where well constructed programmes are available which take full advantage of their potential to present audio-visual materials.

Investment in Education

193. The quality of education is to some extent dependent on the investment which the community is prepared to make in it. The Committee investigated the investment being made in secondary education in Western Australia in relation to efforts being made elsewhere in Australia and overseas, but considerable difficulty was encountered in obtaining reliable and comparable data. Some of the most trustworthy information available is shown in Table 30 but any direct comparison between countries must be treated with caution.

194. Professor R. L. Mathews has drawn attention to the inadequacies of some of the criteria used to measure educational effort. In particular he criticizes the use of the percentage of the Gross National Product (G.N.P.) expended on education. Among other things he states that demographic factors such as the proportion of the total population in the educational age groups are ignored and he concludes that "The percentage of gross national product devoted to education is not an adequate yardstick of educational effort" (60:15).

195. Even if the percentage of G.N.P. expended on education were accepted as a valid measure of educational effort, it could not be used because reliably comparable figures are not available. Harbison and Myers indicate that their data is "subject to a wide margin of error because of different methods of reporting" (58:36). However, they expressed more confidence in their figures on enrolment ratios and on the number of teachers per 10,000 of the population. (See Table 30.) In so far as these measures are acceptable as indicators of educational effort, they show that Australia's effort is reasonably comparable with that of other "advanced level" countries.

196. In terms of human resource development, Australia ranked third behind the United States of America and New Zealand among 16 "advanced level" countries investigated. The composite index used to measure human resource development was based on enrolment at the secondary level as a percentage of the age group 15 to 19, adjusted for length of schooling, and on enrolment at the tertiary level as a percentage of the age group. Seventy-five representative countries were ranked in order according to this index and divided into four groups: Level 1, undeveloped; Level 2, partially developed; Level 3, semi-advanced; and Level 4, advanced. Table 30 shows relevant data for representative countries at each level.

197. The Australian student enrolment ratio at the secondary education level compares favourably with the mean for advanced countries (59%) but does not show up so well in relation to the United States of America (95%), the United Kingdom (82%) or Japan (79%).

198. In terms of the number of teachers employed, Australia's investment in education (62 per 10,000 of population) approximates that of the United Kingdom (64), but shows up poorly in relation to the mean for advanced countries (80) and compares most unfavourably with the United States of America (135).

199. Western Australia's position in relation to that for Australia as a whole is difficult to establish because of differences in the way in which statistics are compiled.

200. Harbison and Myers report that

> There is a high correlation and presumably some causal relation between enrolments in education (and hence investments in education) and a country's level of economic development as expressed by G.N.P. *per capita* (59:185).

The actual correlation coefficient between the composite index of human resource development and G.N.P. *per capita* was 0·9. This suggests that while it may be difficult to compare one country's educational effort with that of another, no country can afford to neglect its investment in education. Secondary school retention rates in Western Australia are showing a continuous improvement (see paragraph 27), as are student/teacher ratios (see paragraph 29), and we trust that these trends will continue to parallel the economic development of this State.

Public Relations

201. It is important that a public relations programme be initiated to interpret these recommendations to the community and in particular to employers. Close liaison will need to be established between the Board of Secondary Education and employers so that satisfactory qualifications for employment in terms of the new certification procedures can be established.

TABLE 30
INVESTMENT IN EDUCATION

		Measures of Human Resource Development				Indicators of Level of Economic Development	
Level (Human Resource Development)	Country	Enrolment Ratio (Adjusted)		Composite Index	Teachers at Primary and Secondary Levels per 10,000 pop.	Percentage Population in Agriculture	G.N.P. *per capita*
		Secondary	Tertiary				
		%	%			%	$U.S.
4	U.S.A.	95	33	261	135	12	2,577
4	Australia	72	13	138	62	13	1,316
4	U.K.	82	8	122	64	5	1,189
4	Japan	79	8	111	75	39	306
4	U.S.S.R.	34	12	93	65	50	600
4	Mean	59	11	115	80	23	1,100
3	Poland	42	5	66	63	57	475
3	Greece	31	3	48	40	48	340
3	India	24	2	35	30	71	73
3	Mexico	10	4	33	36	58	262
3	Mean	27	5	50	53	52	380
2	Turkey	14	2·6	27	27	77	220
2	Ghana	22	0·3	23	44	70	172
2	China (Mainland)	14	1	20	24	69	73
2	Indonesia	7	0·7	11	29	75	131
2	Mean	12	1·6	21	38	65	182
1	Haiti	3·8	0·3	5·3	20	83	105
1	Congo	3·1	0·09	3·6	28	85	92
1	Afghanistan	1·2	0·14	1·9	3·3	85	50
1	Ethiopia	0·5	0·05	0·3	2·2	90	55
1	Mean	2·7	0·1	3·2	17	83	84

Source: Harbison, F., and Myers, C.A., *Education, Manpower and Economic Growth* (59).

APPENDIXES

1. Evidence Submitted.
2. Provision of Secondary Education in Country Areas of Western Australia.
3. The School System of Western Australia.
4. Applications for Exemption from School (1966).
5. Research Project— Streaming (South Fremantle High School, 1967).
6. Public Examinations Board—Junior and Leaving Entries and Results (1966-67).
7. High School Certificate Courses.
8. Achievement Certificate Central Council—Proposals for Secondary Education.
9. Adolescence.
10. Precis of "Statement on the Mental Abilities and Learning of the School Child".
11. Percentage Distribution of First Year Students in Government Secondary Schools According to Approximate Percentile Ranking of Scores on Reading Comprehension Test for Western Australian High Schools, Form A (W.A., 1968).
12. Mathematics III—Percentage of First Year Intake Passing Junior Three Years Later.

APPENDIX 1

EVIDENCE SUBMITTED

A. LIST OF ASSOCIATIONS, COMMITTEES AND ORGANIZATIONS WHO GAVE ORAL EVIDENCE

Association of Independent Schools of Western Australia
  Mr D. A. Lawe-Davies, Principal, Guildford Grammar School
  Brother J. C. Woodruff, Principal, Aquinas College
  Mrs A. I. Symington, Principal, St Mary's C.E.G.S.

Education Department—Achievement Certificate Research Project Regional Councils
  Mr W. Stallwood, Principal, Applecross Senior High School
  Mr M. Anderson, Principal, Newton Moore High School, Bunbury

Independent Schools Salaried Officers' Association
  Mr W. B. Pickering, Science Master, Aquinas College
  Mr C. J. Ashman, Senior English Master, Hale School
  Mr E. R. Prince, Senior Science Master, Hale School

Parents and Citizens' Federation
  Mr C. F. Gladwin-Grove

State School Teachers' Union of Western Australia
  Mr A. Staples, Senior Lecturer, Graylands Teachers' College
  Mr H. W. Bennett, Deputy Principal, John Forrest Senior High School
  Mr T. K. Lloyd, Assistant General Secretary, State School Teachers' Union of Western Australia
  Mr T. Anderson, Manual Arts Master, John Curtin High School
  Mr F. R. Evans, Headmaster, Hamilton High School
  Mr R. Lamb, Master, Mount Lawley Senior High School

Western Australian Institute of Technology
  Dr H. S. Williams, Director
  Mr S. Waddell, Head of Department of Mathematics

LIST OF INDIVIDUALS WHO GAVE ORAL EVIDENCE

Mr A. W. Anderson, Senior Lecturer, Education, University of Western Australia
Professor A. J. F. Boyle, Professor of Physics, University of Western Australia
Brother W. G. Hall, Consultant for Christian Brothers' Colleges in W.A. and S.A.

B. LIST OF ASSOCIATIONS, COMMITTEES AND ORGANIZATIONS WHO SUBMITTED WRITTEN EVIDENCE

Armadale Senior High School Staff
Association of Diploma Engineers of Western Australia
Association of Independent Schools of Western Australia
Australian Dental Association, Western Australia Branch
Churches of Christ in Western Australia
Commercial Colleges' Association of Western Australia
Communist Party, Western Australia Branch
Country Women's Association of Western Australia
Dalwallinu Parents and Citizens' Association
Education Department—Achievement Certificate Research Project

1. Central Council (1968)
    - Dr D. Mossenson, Director of Secondary Education (Chairman)
    - Mr W. Woods, Director of Special Services
    - Mr W. Pirrett, Superintendent of Curriculum
    - Mr H. Bennett, Deputy Principal, John Forrest S.H.S., Representative of Teachers' Union
    - Mr B. Withers, Principal, Northam S.H.S., Representative of Regional Council
    - Mr C. Mutzig, Principal, Kewdale High School, Representative of Regional Council
    - Mr F. Currell, Principal, Bentley S.H.S., Representative of Regional Council
    - Mr W. Stallwood, Principal, Applecross S.H.S., Representative of Regional Council
    - Mr J. Paul, Principal, Hollywood S.H.S., Representative of Regional Council
    - Mr H. Bennett, Principal, Bunbury S.H.S., Representative of Regional Council
    - Mr R. Biggins, Superintendent of Secondary Education, English, Representative of Secondary Superintendents' Panel
    - Mr C. Hamer, Headmaster, Wesley College, Representative of Independent Schools' Association
    - Mr T. Downing, Executive Officer, Achievement Certificate Research Project
    - Mr P. Gunning, Senior Master, English (Secretary)
    - Brother W. G. Hall, Consultant for Christian Brothers' Colleges in W.A. and S.A.
    - Dr R. Bovell, District Superintendent of Education
2. Science Syllabus Committee (1968)
    - Mr C. Fitzpatrick, Acting Secondary Superintendent, Science (Chairman)
    - Mr K. Betjeman, Acting Secondary Superintendent, Science
    - Mr P. Davies-Moore, Senior Master, Biology, Hollywood Senior High School
    - Mr R. McInerney, Senior Master, Physics and Chemistry, John Forrest Senior High School
    - Mr H. Rintoul, Senior Master, Physics and Chemistry, Kent Street Senior High School
    - Mr G. Foyer, Master, Mirrabooka High School (High School Certificate Representative)
    - Mr D. O'Sullivan, Independent Schools' Representative
    - Mr W. Hudson, Senior Lecturer, Claremont Teachers' College
    - Mr A. Walkington, Acting Principal, Technical Extension Service (Teachers' Union Representative)
    - Mr A. Ryan, Curriculum Officer, Science (Secretary)

3. English Syllabus Committee (1968)
   - Mr R. Biggins, Secondary Superintendent, English (Chairman)
   - Miss N. Richards, Secondary Superintendent, English
   - Miss J. Chislett, Representative of Independent Schools
   - Mr J. Haire, Representative of Secondary Teachers' College
   - Mr H. Yelland, Deputy Principal, South Fremantle High School
   - Mr E. Carlin, Senior Master, English, Perth Modern Senior High School
   - Mr P. Gunning, Senior Master, English, seconded to Curriculum Branch (Secretary)
   - Mrs H. Thanos, Curriculum Officer
   - Mr D. Brennan, Senior Master, English, Churchlands Senior High School

4. Mathematics Syllabus Committee (1968)
   - Mr J. Greenway, Secondary Superintendent, Mathematics (Chairman)
   - Mr D. Buck, Senior Master, Mathematics, Perth Modern Senior High School
   - Mr S. Jongling, Senior Master, Mathematics, Churchlands Senior High School
   - Mr G. Bown, Senior Master, Mathematics, Bentley Senior High School
   - Mr H. Orriss, Representative of Secondary Teachers' College
   - Mr C. Calcutt, Representative of High School Certificate Syllabus Committee
   - Mr J. Thompson, Senior Master, Mathematics, John Forrest Senior High School
   - Mr B. Gilmour, Representative of Independent Schools
   - Mr N. Hoffman, Deputy Principal, Cyril Jackson High School
   - Mr B. Lawrence, Advisory Teacher (Mathematics), Education Department
   - Miss I. Froyland, Curriculum Officer (Mathematics), Education Department (Secretary)

5. Social Studies Syllabus Committee (1968)
   - Mr C. Makin, Secondary Superintendent, Social Studies (Chairman)
   - Mr A. Anderson, Senior Master, Geography, Churchlands Senior High School
   - Mr D. Black, Advisory Teacher in Secondary Social Studies
   - Mr B. Hyams, Lecturer, Social Studies, Claremont Teachers' College
   - Mr P. Leece, Senior Master, Geography, Governor Stirling Senior High School
   - Mr B. McLay, Headmaster, Middle School, Scotch College
   - Mr A. Rowe, State School Teachers' Union
   - Mr E. Styles, Lecturer, Social Studies, Secondary Teachers' College
   - Mr D. Wakefield, High School Certificate Curriculum Officer
   - Mr L. Hunt, Secondary Social Studies Curriculum Officer (Secretary)

Metropolitan Regional Council (1967)
- Mr W. Stallwood, Principal, Applecross Senior High School (Chairman)
- Mr G. Cullen, Principal, John Forrest Senior High School
- Mr F. Currell, Principal, Bentley High School
- Mr J. Down, Principal, Hamilton High School
- Mr T. Downing (Research Officer)
- Mr C. Glenister, Principal, South Fremantle High School
- Mr J. Griffin, Principal, Churchlands Senior High School
- Mr M. Martin, Principal, City Beach High School
- Mr W. Moir, Principal, Balcatta High School
- Mr C. Mutzig, Principal, Kewdale High School
- Mr J. Paul, Principal, Hollywood Senior High School (Secretary)

  - Mr C. Riedel, Principal, Belmont High School
  - Mr W. Speering, Principal, Perth Modern Senior High School
  - Mr B. Withers, Principal, Northam Senior High School

- South-West Regional Council of Achievement Certificate (1967)
  - Mr H. Bennett, Principal, Bunbury Senior High School (Chairman)
  - Mr M. Anderson, Principal, Newton Moore High School (Secretary)
  - Mr K. Byfield, Headmaster, Donnybrook Junior High School
  - Mr T. Downing (Research Officer)
  - Mr W. Gibbney, Principal, Busselton Senior High School
  - Mr P. Latham, Principal, Harvey Agricultural High School
  - Mr M. McLeod, Principal, Collie Senior High School
  - Mr R. Smith, Relieving Headmaster, Pemberton Junior High School
  - Mr R. Stevens, Relieving Principal, Bridgetown High School
  - Mr J. Trevaskis, Principal, Margaret River High School
  - Mr G. Watkins, Principal, Manjimup Senior High School
  - Mr B. Wright, Headmaster, Waroona Junior High School

- Esperanto League of Western Australia
- Farmers' Union of Western Australia
- Headmasters' Conference of Western Australia
- Independent Schools Salaried Officers' Association
- Institute of Health Surveyors
- Junior Farmers' Union of Western Australia
- Kununurra Parents and Citizens' Association
- Main Roads Department of Western Australia
- Meat and Allied Trades Federation of Australia
- Modern Languages Teachers' Association of Western Australia
- Mount Pleasant Parents and Citizens' Association
- Muresk Agricultural College
- Nurses' Registration Board
- Pharmaceutical Council of Western Australia
- School of Mines, Western Australia
- State School Teachers' Union of Western Australia
- University Staff Association
- Western Australian Federation of Parents and Citizens' Associations
- Western Australian Institute of Technology
- Women's Service Guild of Western Australia

LIST OF INDIVIDUALS WHO SUBMITTED WRITTEN EVIDENCE

- Mr A. W. Anderson, Senior Lecturer, Education, University of Western Australia
- Mr S. C. Barbara, Tutor in Education, Further Education Centre, Subiaco
- Mr H. E. Barnes
- Mr A. Barrett, Temporary Senior Lecturer in English and Social Studies, Fremantle Technical College
- Mr J. T. Carr, Executive Officer, Health Education Council of Western Australia
- Mr R. Cheeseman
- Mrs L. E. Cuffley

Mr R. H. Doig, Public Service Commissioner, Government of Western Australia
Reverend B. A. Eggleston, Director, Anglican Diocesan Board of Religious Education
Mr D. G. Forrest
Mr R. I. Harrold, Lecturer, Social Studies, Leederville Technical College
Mrs J. Harris
Mr R. Hatchett, Master, Hillcrest Primary School
Mr P. R. Jones
Mr R. Macdougall, Psychologist, Guidance Branch, Education Department
Mr W. M. Nelli, Plant Engineer, Main Roads Department, Western Australia
Dr C. A. Parker, Reader, Agricultural Soil Science, University of Western Australia.
Mr S. A. Power, A.E.U. Representative, Automotive A.P.P. Board
Bishop S. B. Rosier, Assistant Bishop, Diocese of Perth
Mr A. K. Russell, Head of Department of Art, Western Australian Institute of Technology
Mr E. Styles, Lecturer, Social Studies, Secondary Teachers' College
Mr I. K. Tampion, Organization Director, Hubbard Association of Scientologists International
Mrs J. G. Way
Dr J. S. Way, Senior Lecturer, University of Western Australia
Mrs M. White, Psychologist, Colin Street, West Perth

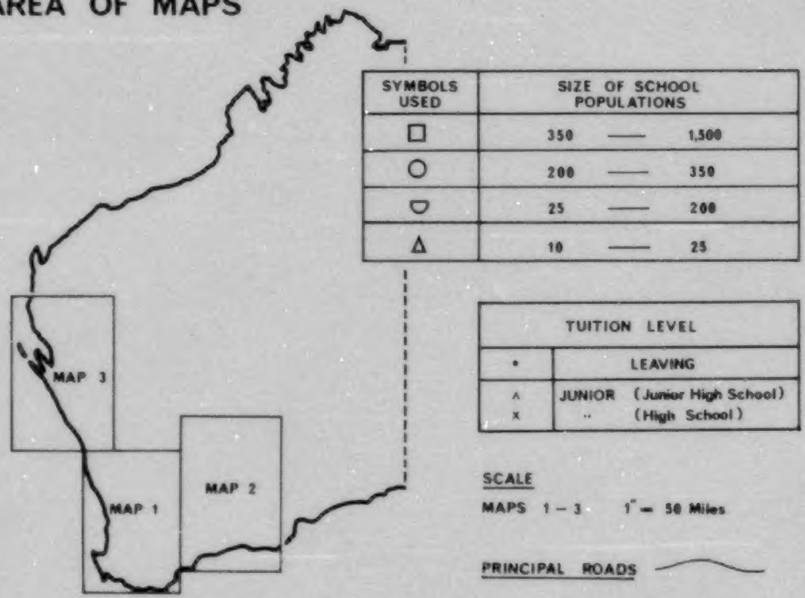
APPENDIX 2

PROVISION OF SECONDARY EDUCATION IN COUNTRY[11] AREAS OF WESTERN AUSTRALIA (AT AUGUST, 1966)

MAPS SHOWING LOCATION OF PLACES OFFERING SECONDARY EDUCATION, RELATIVE SIZE AND LEVEL OF EDUCATION

(Government and Non-Government School Numbers Combined)

AREA OF MAPS


SYMBOLS USED
SIZE OF SCHOOL POPULATIONS
□ 350 — 1,500
○ 200 — 350
◡ 25 — 200
△ 10 — 25
TUITION LEVEL
• LEAVING
^ JUNIOR (Junior High School)
x " (High School)
SCALE
MAPS 1 – 3 1" = 50 Miles
PRINCIPAL ROADS
MAP 1
MAP 2
MAP 3

The following places having less than ten secondary pupils are not shown on the maps:

Map 1

Bencubbin
Cadoux
Dumbleyung
Frankland R.
Gingin
Hyden
Kalannie
Kukerin
Lancelin
Mt Manypeaks
Mollerin
Mukinbudin
Ongerup
Pingaring
Tingledale
Walpole
Wialki

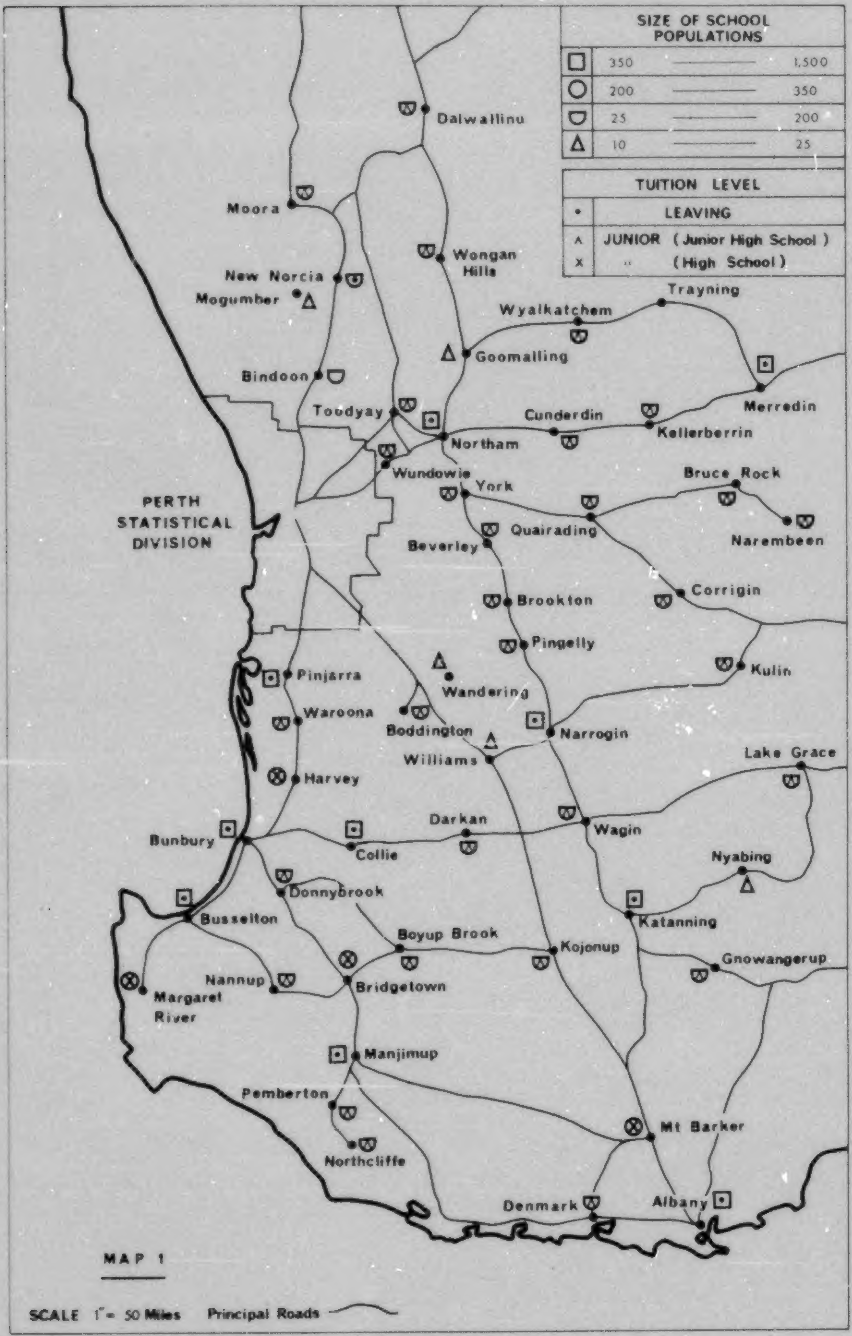
Map 2

Bodallin
Karlgarin
Menzies
Moorine Rock
Newdegate
Ravensthorpe (off map)
Leonora
Rawlinna
Reid

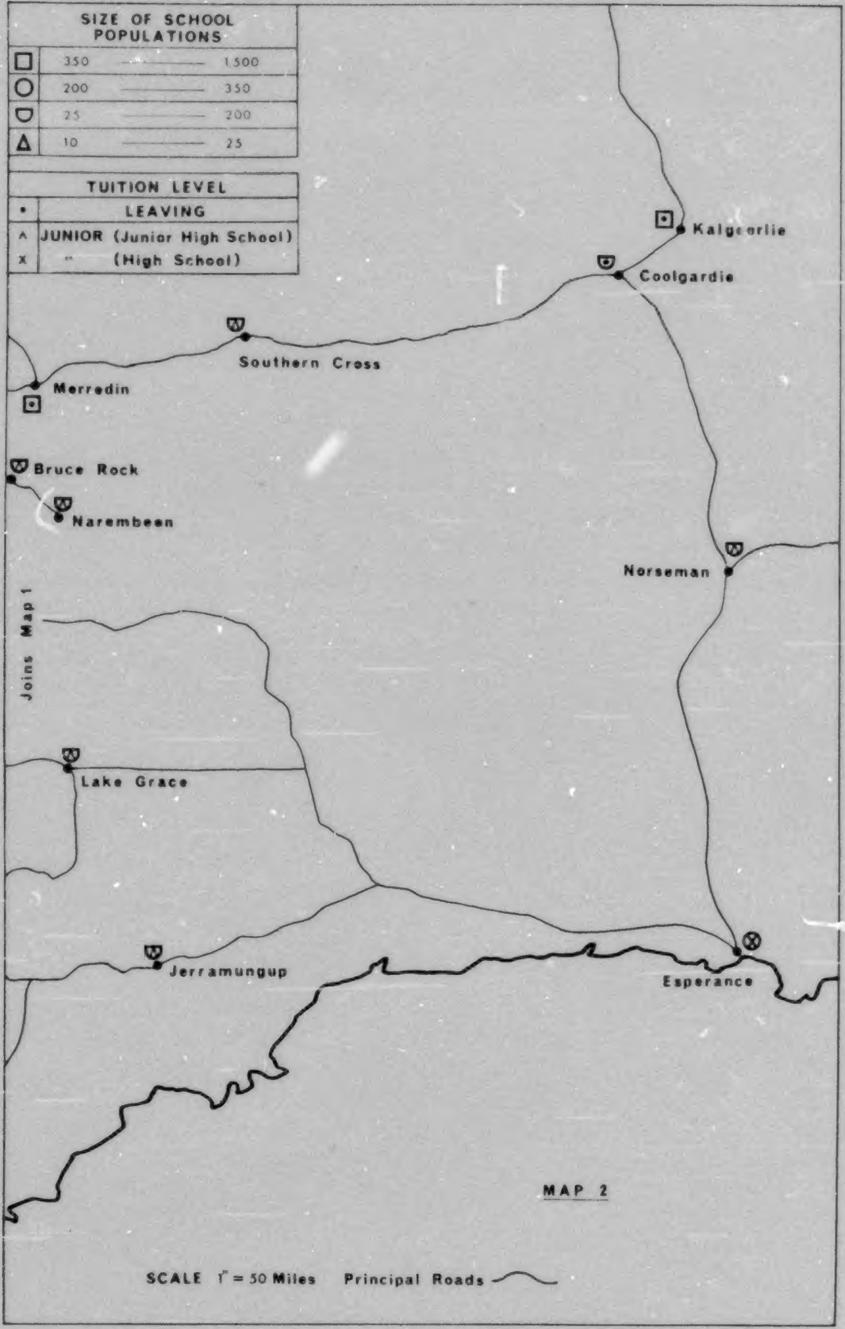
Map 3

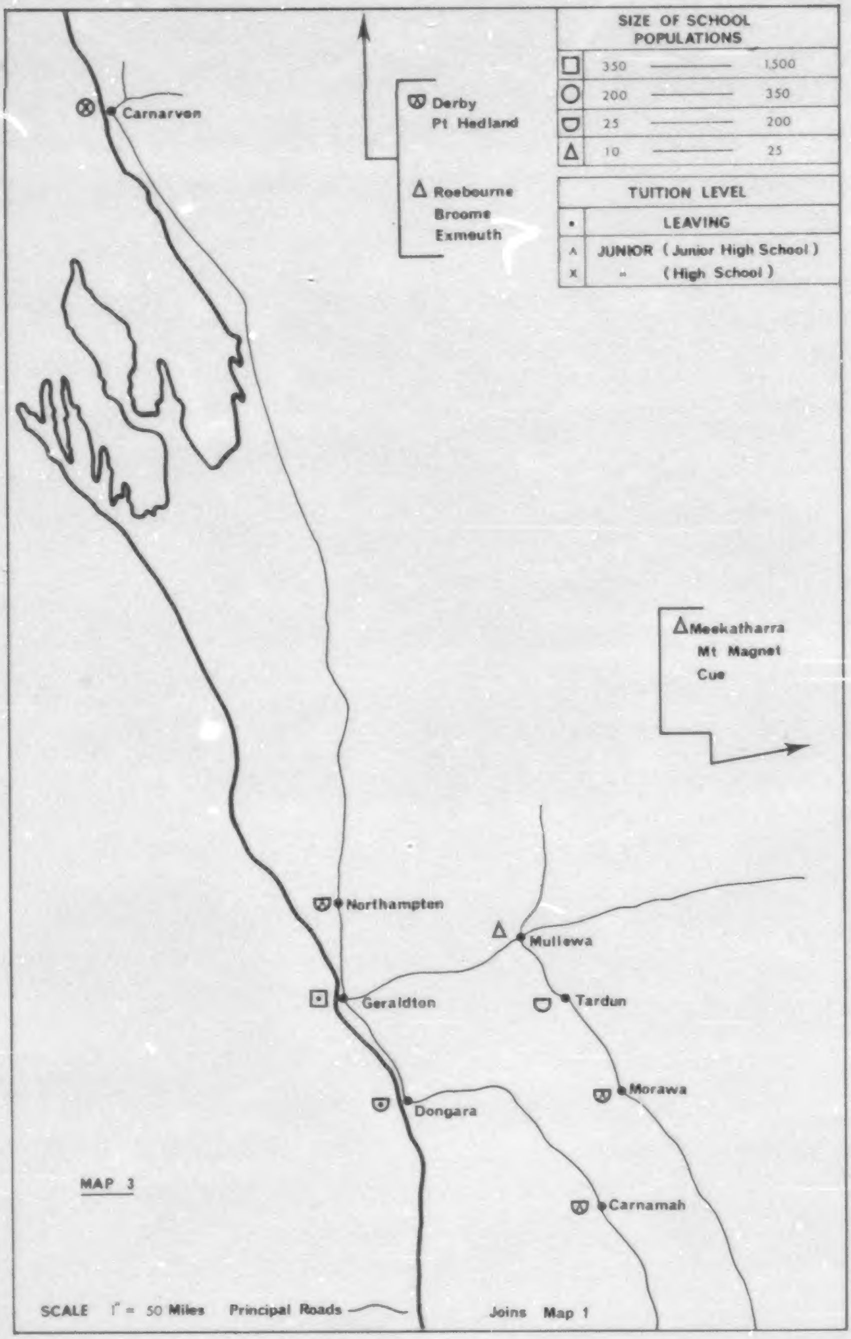
Kalbarri
Latham
Perenjori
Yuna (off map)
Albion
Camballin
Christmas Creek
Cockatoo Is.
Forrest R.
Karalundi
Koolan Is.
Kununurra
Marble Bar
Mt Goldsworthy
Onslow
Shark Bay
Wiluna
Wittenoom Gorge
Wyndham

[11] Country is here defined as outside the Perth Statistical Division of the Bureau of Census and Statistics.


SIZE OF SCHOOL POPULATIONS
□ 350 — 1,500
○ 200 — 350
25 — 200
△ 10 — 25
TUITION LEVEL
• LEAVING
^ JUNIOR (Junior High School)
x " (High School)
Dalwallinu
Moora
Wongan Hills
New Norcia
Mogumber
Trayning
Wyalkatchem
Goomalling
Merredin
Bindoon
Toodyay
Cunderdin
Kellerberrin
Northam
Wundowie
Bruce Rock
York
Narembeen
PERTH STATISTICAL DIVISION
Quairading
Beverley
Corrigin
Brookton
Pingelly
Kulin
Pinjarra
Wandering
Waroona
Boddington
Narrogin
Williams
Lake Grace
Harvey
Darkan
Wagin
Bunbury
Collie
Nyabing
Donnybrook
Katanning
Busselton
Boyup Brook
Kojonup
Gnowangerup
Nannup
Bridgetown
Margaret River
Manjimup
Pemberton
Mt Barker
Northcliffe
Denmark
Albany
SCALE 1" = 50 Miles
Principal Roads

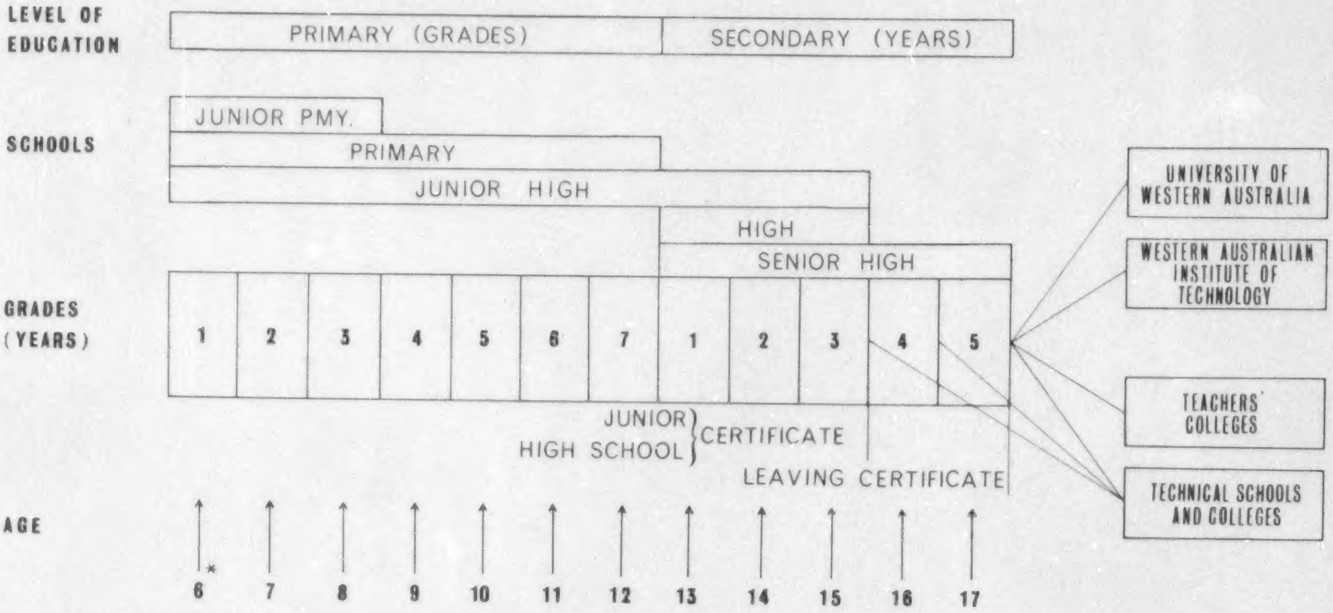
MAP 1


SIZE OF SCHOOL POPULATIONS
350 — 1,500
200 — 350
25 — 200
10 — 25
TUITION LEVEL
• LEAVING
^ JUNIOR (Junior High School)
x " (High School)
Kalgoorlie
Coolgardie
Southern Cross
Merredin
Bruce Rock
Narembeen
Norseman
Joins Map 1
Lake Grace
Jerramungup
Esperance
MAP 2
SCALE 1" = 50 Miles
Principal Roads


SIZE OF SCHOOL POPULATIONS
□ 350 —— 1,500
○ 200 —— 350
D 25 —— 200
Δ 10 —— 25
TUITION LEVEL
• LEAVING
^ JUNIOR (Junior High School)
x " (High School)
Derby
Pt Hedland
Δ Roebourne
Broome
Exmouth
Carnarvon
Δ Meekatharra
Mt Magnet
Cue
Northampton
Mullewa
Geraldton
Tardun
Morawa
Dongara
Carnamah
MAP 3
SCALE 1" = 50 Miles
Principal Roads
Joins Map 1

APPENDIX 3

THE SCHOOL SYSTEM OF WESTERN AUSTRALIA


LEVEL OF EDUCATION
PRIMARY (GRADES)
SECONDARY (YEARS)
SCHOOLS
JUNIOR PMY.
PRIMARY
JUNIOR HIGH
HIGH
SENIOR HIGH
GRADES (YEARS)
1
2
3
4
5
6
7
1
2
3
4
5
JUNIOR HIGH SCHOOL CERTIFICATE
LEAVING CERTIFICATE
UNIVERSITY OF WESTERN AUSTRALIA
WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY
TEACHERS' COLLEGES
TECHNICAL SCHOOLS AND COLLEGES
AGE
6*
7
8
9
10
11
12
13
14
15
16
17

*Compulsory education extends from the age of 6 years, until the end of the year in which a student turns 15. The majority of children commence school at the beginning of the year in which they turn 6.

APPENDIX 4

APPLICATIONS FOR EXEMPTION FROM SCHOOL, 1966

1. Applications Received

	Boys	*Girls*	*Total*
Approved	415	296	711
Not approved	61	39	100
Total	476	335	811

2. Type of Employment

Skilled—Semi-skilled	*Approved*	*Not Approved*
Apprenticeships	204	29
Clerical, etc	65	4
Unskilled		
Shop Assistants	148	12
Junior Workers (factory workers, machinists, etc.)	118	11
Farming	40	13
Dressmaking, Clothing Trade	22	7
Others	114	26

3. Major Factors

(*a*) Child's poor ability and lack of progress at school	437
(*b*) Financial hardship affecting the family	119
(*c*) Medical—parents' illness	8
(*d*) Other—not defined	247

4. Type of School and Area

(*a*) Government Schools	780
Non-Government Schools	22
Technical Schools	9
(*b*) Metropolitan Schools	593
Country Schools	218

APPENDIX 5

RESEARCH PROJECT—SCHOOL ORGANIZATION
SOUTH FREMANTLE HIGH SCHOOL, 1967

The first year intake of approximately 300 students was divided into three houses (Fremantle, O'Connor and Vlaming) of about 100 students each. The grouping was based on alphabetic lists of surnames for boys and girls separately. Fremantle House comprised those students whose surnames began with the letters A to F; F to O comprised O'Connor House, and O to Z comprised Vlaming House. This procedure was adopted to enable children from the one family to belong to the same house. The mean I.Q.s were calculated for each house and they did not differ significantly. The distributions of I.Q.s were also examined and found to be comparable.

Each house was divided into three classes for instructional purposes. These groupings were flexible varying both according to subject, and according to progress made by individual students during the year. The classes within a house were cross-set for each of the subjects or groups of subjects as shown on in Table 31.

All students in one house had English at the same time. Three English teachers were allocated to the house and the students were grouped into classes according to English ability. As far as possible, a teacher who taught an A stream in one house taught a B stream and a C stream, respectively, in the other houses. A similar procedure was adopted for Social Studies, Mathematics and Science with grouping for each subject based on achievement in that subject. In general, grouping occurred each term.

When the 100 students were streamed, more students were allocated to each of the A and C streams than to the B stream. This was to allow for the greater variability which existed in the A and C streams and to facilitate the formation of special groups of high and low ability students, respectively, in these classes.

The A stream English class studied French and the B and C streams received two extra English periods and one extra period for both Music and Physical Education. As the school had only one Manual Arts and one Home Science Centre, it was necessary to "block set" the four periods for Manual Arts or Home Science with another eight periods as is shown in Table 31 below. Each house was similarly organized with no two houses having a subject at the same time.

A teacher who taught a class group for at least six periods per week was appointed to a house to act as the form master for that group. One of the three teachers assigned to each house was nominated to act as the housemaster. Each teacher kept a diary in which to record absences from the classes which he taught.

TABLE 31

CROSS-SETTING OF FREMANTLE HOUSE

(The number of periods is shown in brackets)

Class 1		Class 2		Class 3	
English	(6)	English	(6)	English	(6)
Social Studies	(6)	Social Studies	(6)	Social Studies	(6)
Mathematics	(6)	Mathematics	(6)	Mathematics	(6)
Science	(3)	Science	(3)	Science	(3)
French	(4)	English	(2)	English	(2)
French		English		English	
French		Music (Boys)	(1)	Physical Ed. (Girls)	(1)
French		Physical Ed. (Boys)	(1)	Music (Girls)	(1)
Manual Training or Home Science	(4)	Art—Tech. Drawing	(2)	Scripture	(1)
Manual Training or Home Science		Art—Tech. Drawing		Library	(1)
Manual Training or Home Science		Health Education	(1)	Spoken English	(1)
Manual Training or Home Science		Physical Ed. (Boys)	(1)	Music (Girls)	(1)
Scripture	(1)	Manual Training or Home Science	(4)	Art—Tech. Drawing	(2)
Library	(1)	Manual Training or Home Science		Art—Tech. Drawing	
Spoken English	(1)	Manual Training or Home Science		Health Education	(1)
Music (Boys)	(1)	Manual Training or Home Science		Physical Ed. (Girls)	(1)
Art—Tech. Drawing	(2)	Scripture	(1)	Manual Training or Home Science	(4)
Art—Tech. Drawing		Library	(1)	Manual Training or Home Science	
Health Education	(1)	Spoken English	(1)	Manual Training or Home Science	
Physical Ed. (Boys/Girls)—2 classes	(1)	Music	(1)	Manual Training or Home Science	
SPORT (2) SPECIAL SCRIPTURE (1)					
TOTAL=40 PERIODS					

APPENDIX 6

THE UNIVERSITY OF WESTERN AUSTRALIA
PUBLIC EXAMINATIONS BOARD
Junior and Leaving Entries and Results (1966-67)

Year	Examination	Total Entries	Full-time Students	Part-time Students		Record of Part-time Students							
					Passed Nil	1	2	3	4	5	6	7	8
1967	Junior	16,275	12,902	3,373	949	1,636	528	232	19	4	2	1	2
1966	Junior	14,828	13,119	1,709	712	732	195	49	9	8	3	1	–
1967	Leaving	6,430	4,183	2,247	1,197	806	198	33	10	3			
1966	Leaving	5,659	3,808	1,851	990	656	156	38	8	3			

APPENDIX 7

HIGH SCHOOL CERTIFICATE COURSES

The curriculum for High School Certificate students may be divided into four major sections: (*a*) core subjects, (*b*) social education, (*c*) pre-vocational subjects, and (*d*) other courses.

(a) Core Subjects

Fourteen periods are devoted to core subjects of which 4 are allocated to English, 4 to Social Studies, 3 to Arithmetic and 3 to Science. It is recommended that at least the first 10 of these periods be taken by the one teacher and where possible the Science also. In order to simplify programme preparation and to allow for difficulties in school organization the programmes in each subject have been prepared separately but it is suggested that teachers, in preparing detailed programmes of work, should endeavour to correlate the separate fields so that these subjects become a core of information rather than a series of individual subjects. The courses are to be regarded as suggestive not prescriptive and teachers are invited to avail themselves of the freedom to modify courses bearing in mind that the overall course aims at developing attitudes, ideals and skills rather than imparting a series of facts which may be soon forgotten.

(b) Social Education

This general term is used to cover a wide range of general school activities. Included in this group are Library (1 period); Physical Education (2), Sport (2); Religious Instruction (1); Health Education (1); Music (1); Art (2) and Home Room, Assembly period or Club period (1).

(c) Pre-vocational Subjects

Perhaps the major difference between the new H.S.C. courses and those designed earlier has been inclusion of courses which are pre-vocationally oriented. Generally these studies are not narrowly vocational but endeavour to introduce the student to a fairly wide range of occupations. The purpose of this is (*a*) to give the student some information on which future vocational decisions may be based, and (*b*) to provide motivation through demonstrating the relevance of the courses being studied. These courses also provide for leisure activities in the post-school situation and have general educational value irrespective of whether the student chooses to enter any of these occupations. Some of these pre-vocational courses are being undertaken in special workshops provided for the purpose in selected high schools.

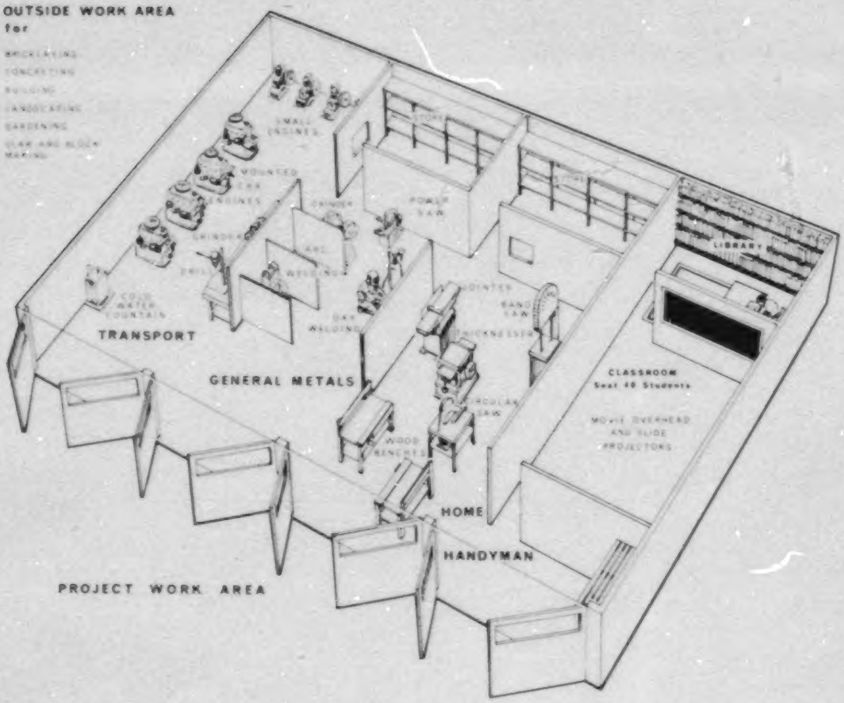

OUTSIDE WORK AREA for
BRICKLAYING
CONCRETING
BUILDING
LANDSCAPING
GARDENING
SLAB AND BLOCK MAKING
SMALL ENGINES
MOUNTED CAR ENGINES
GRINDER
DRILL
COLD WATER FOUNTAIN
ARC WELDING
GRINDER
OXY WELDING
STORE
POWER SAW
STORE
LIBRARY
JOINTER
BAND SAW
THICKNESSER
CIRCULAR SAW
WOOD BENCHES
CLASSROOM
Seat 40 Students
MOVIE OVERHEAD AND SLIDE PROJECTORS
TRANSPORT
GENERAL METALS
HOME
HANDYMAN
PROJECT WORK AREA

Plate 19
The layout of a pre-vocational workshop. The two courses taught in these workshops are Home Handyman and Transport.

A brief outline of the purposes and content of subjects which are currently available is presented below:

(i) Office Procedure

This course has been designed for students who after some experience of office work may feel that they would like to make this their occupation. The course deals with general office procedure, filing, personal relations, telephone techniques, commercial practice and in addition supplements those areas of general education which require special attention. As an example a good deal of work will be required in English. It is suggested that the motivation provided by the meaningful situation will make time spent in this way profitable.

(ii) Retail Trade

Many students, both boys and girls, enter the field of distribution. This elective aims (1) to provide a broad background to distribution which will assist in occupational choice, and (2) to provide skills of value in retail distribution.

Some of the topics covered are (i) personal relations, (ii) business organization, (iii) advertising, (iv) ticket writing and display, (v) merchandise control, (vi) selling, (vii) instruction in those aspects of arithmetic and English which have particular application to retail trade.

This course has been designed to include some *work experience*. (See paragraph 48.)

(iii) Transport

This is a two-year course conducted at regional workshops. The course has three aims:

(1) To give an introduction to the variety of trades within the motor and transport industries thus providing experience as a basis for future vocational choice.
(2) To provide elementary instruction in the care and maintenance of engines and motor vehicles.
(3) To build habits of safety in regard to workshops and the road.

The course includes workshop and road safety, elementary automotive principles, transport regulations, care and use of workshop equipment and trade mathematics.

Where possible work experience and visits are desirable but not essential.

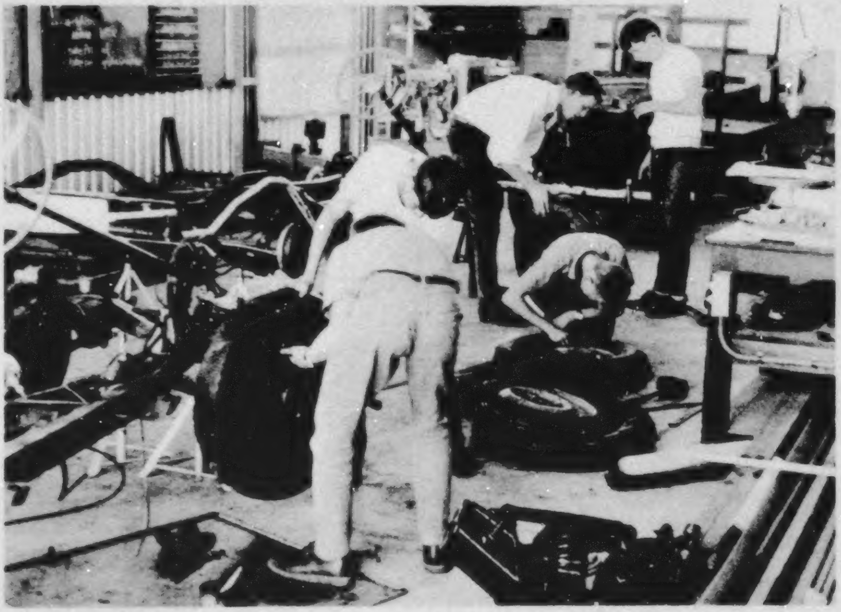


Plate 20

Students in a transport class. This is part of the course dealing with servicing tyres and wheel bearings.

(iv) Home Handyman

This course has three main aims.

(1) To give an overall impression of the broad group of trades which make up the building industry and thus provide experience which will assist in the making of future occupational choices.
(2) To develop skills which are of value to the home handyman.
(3) To provide some particular instruction in educational pre-requisites for entry to these trades.

This is intended as a two-year course. In the first year of the course the work is largely concerned with the development of skills, while in the second year it is hoped that these skills will be used in the undertaking of school projects, which entail use of the skills learnt but in addition have social benefit to the students and are of use to the school in providing amenities which would not otherwise be available.

The course includes safety education in the use of equipment, welding, cementing, rendering, brick-laying, elementary stone-work, painting, glazing, general household maintenance, some practical geometry, introduction to blueprints and specifications, comparison of materials, trade mathematics and visits.

(v) Boating

The aims of the boating course are:

(1) To develop skills associated with boating generally.
(2) To teach principles of water safety and boating regulations and to develop sensible attitudes towards safety.
(3) To acquaint the student with some knowledge of the fishing industry and boating for leisure.
(4) To teach students some aspects of the construction and maintenance of boats.
(5) To create an interest in boating and to develop sound consumer judgement.

(d) Other Courses

A number of other courses are also available. These include:

(i) Home Science
(ii) Typing
(iii) Woodwork
(iv) Metalwork
(v) Craft
(vi) Community and Service
(vii) Personal Development

Some of these courses are familiar and require no explanation. A brief summary of the purpose and content of those which may be unfamiliar follows:

(v) Craft

A special craft course has been designed which aims to integrate art and craft and in addition to the usual craft activities includes sections on functional design and the application of craft in other elective activities. Fundamentally the course is designed to foster an interest which will be of value to the student as a future leisure activity and also to develop standards in regard to design and construction which will lead to a more critical awareness as a consumer. This course could be undertaken by boys and girls.

(vi) Community and Service

This is a four period elective activity for both boys and girls. This elective has two major aims: (i) to provide opportunities for the student to make a contribution to the community of which he is a member, and (ii) to provide a motivated situation in which the student can develop skills, interests and attitudes which will be of value in post-school living.

The elective is based on the Duke of Edinburgh's award though whether this award is to be the goal of the course or not is left to the individual schools. There are some reasons for tying the course to the Duke of Edinburgh's Award:

(i) It may provide strong motivation since the end is attainable and has wide acceptance.
(ii) The prestige value may help in the building of self-respect and school realization that these students are not doing inferior courses but different courses.

There are quite strong elements of general education in the course but the aim is to interest the student so that he may continue associated activities when he leaves school and this is more important than developing a high level in the skills enumerated.

(vii) Personal Development

This is a two-period one-year elective designed for girls. As the name indicates the course aims to provide a basis of knowledge for personal development and a forum for discussion of the problems of the teen-age girl. The course is sequential in that it deals with the girl at her present stage of development and then looks forward to the world of work and subsequently to marriage.

Time-Tabling

There are no time-tabling instructions since the range of courses offered varies between schools, but a common pattern at the Second Year level has been:

Girls		*Boys*	
Home Science	8 periods	Woodwork	4 periods
Typing	4 periods	Metalwork or Typing	4 periods
Personal Development	2 periods	Transport	4 periods
Craft	2 periods	Home Handyman	4 periods
Core Subjects	14 periods	Core Subjects	14 periods
Social Education	11 periods	Social Education	11 periods

At the third-year level wider choice of subjects is considered to be desirable. This may be provided by allowing students to select one course from each of the following groups and cross-setting these as alternatives.

(*a*) Woodwork, Retail Trade, Office Procedure
(*b*) Metalwork, Typing, Craft
(*c*) Transport, Retail Trade, Home Science I
(*d*) Home Handyman, Community and Service, Home Science II

Probably any student wishing to do Office Procedure would also be required to do Typing in order to develop a group of saleable skills.

APPENDIX 8

ACHIEVEMENT CERTIFICATE CENTRAL COUNCIL

PROPOSALS FOR SECONDARY EDUCATION

Early in 1968 a new approach was adopted to overcome problems being encountered in the implementation of the Achievement Certificate scheme. Under the direction of the Central Council, subject committees were reconstituted and asked to consider a number of questions relating to the pattern of secondary education. The reports of the committees for English, mathematics, social studies, and science revealed broad areas of agreement. A new set of proposals was then devised and modified in accordance with suggestions received from various quarters.

It should be appreciated that, while these proposals have been planned with the first three years of secondary education in mind, they would readily lend themselves to an extension to include Fourth Year if this were found desirable. The disappearance of both the Junior Certificate and the High School Certificate is envisaged. In other words, not only is the removal of the external examination foreshadowed, but a single framework is proposed which would cater for virtually all students of the thirteen-to-fifteen or sixteen years age groups. Adequate provision for individual differences in ability must therefore be an intrinsic feature of the plan. It is proposed that a certificate constructed on the cumulative record principle would become available on a State-wide basis issued by a central authority created for this purpose. It would be the responsibility of this authority to satisfy community needs for reliable certification, comparable from school to school, while leaving schools as much freedom as possible. Until such an authority is established, the Achievement Certificate Central Council will function in this capacity. With this end in view, the representation of non-Government schools on the Council has been increased.

PROPOSALS

The essential principles involved in these proposals may be summarized as follows: firstly, provision for individual differences in ability by means of a multi-level approach for certain subjects; and secondly, certification based upon internal school assessment. The organizational arrangements outlined below have been designed with Government schools in mind. Non-Government schools could either adopt or vary the pattern to meet their own particular requirements.

1. Individual Differences—A Multi-level Approach

Different arrangements are envisaged for different categories of subjects. English, mathematics, social studies and science, which all students undertake each year during the first three years of their secondary education, may be named core subjects. A weekly time allocation of six periods for each of these subjects is suggested. A second group of subjects required to be taken by all students includes physical and health education and religious instruction. Core and required studies would therefore together occupy approximately three-quarters of the week. The remaining time would be available for the third category of subjects, called options, which students may elect to take for one or more years. Increased time allotments for options is possible by means of reductions in the time allotted to the core subjects for second and third year students proceeding to vocationally oriented courses.

In order to provide for individual differences in ability, a multi-level approach is proposed for the core subjects. Three levels, which may be named *advanced, intermediate* and *basic*, are planned for English, social studies, and science. For mathematics, four levels, which tentatively may be named *advanced, ordinary, elementary* and *basic*, are proposed. Obviously this framework requires the clear delineation of syllabuses for all levels. This multi-level approach should not be confused with streaming in terms of general ability, because allocations to levels would be separately determined by attainment in each subject. Accordingly, while some students may proceed at a similar level in all or several of the core subjects, many students may be at different levels in these subjects. Nor will students necessarily remain in the same level year after year. Transfer by pupils between levels within a subject, especially upward transfer, is envisaged as an integral part of the scheme. To this end adjustment classes as well as special programmes for students in marginal classes, may be instituted. Other measures designed to facilitate upward transfer include equal period allocations for different levels, the availability of special text materials, and the annual re-administering of the placement tests (referred to in the next section). By these methods it is anticipated that adequate provision will be made for late maturity and special student application. It should also be noted that it is not proposed to persist with the pattern of Science A and Science B, and Social Studies A and Social Studies B in the new plan.

As a consequence of the multi-level approach, teaching at two or more levels within the one class room may become necessary. In larger schools the incidence of group teaching of this type may be reduced by cross-setting procedures but in small schools this is not possible. For this reason in particular it was recognized that, before the multi-level system could be implemented, courses would need to be designed in detail and guides and aids for teachers prepared. (See later section headed *Implementation*.)

It is not proposed to extend the multi-level approach to options (with the possible exception of foreign languages) because these subjects lend themselves to individualized methods of instruction. Student interest and ability are also catered for in this area by means of the range of the subject choices available. The suggested framework for Government schools showing core subjects and options is detailed in an attachment to this statement entitled *Organization of Courses and Period Allocations*. Reference may be made here to the inclusion of two pastoral periods, which are likely to assume added importance when class structures become more flexible in order to facilitate the multi-level approach and to establish transfer between levels as an accepted feature. Attention is also directed to a second attachment entitled *High School Time Table*, which illustrates cross-setting devices and indicates how core and optional subjects may be time-tabled.

2. Certification—Internal Assessment Externally Moderated

A common State-wide certificate would be available to all secondary school pupils. This certificate would be issued by the central authority established for this purpose. For the core subjects, the certificate would present a cumulative record showing year and level of course studied. In addition, the certificate would list the optional subjects undertaken each year. While correct placement of students should do away with failure, two modifications to this general rule are envisaged. To provide an incentive, the qualification "credit" would be added where warranted at any level. Secondly, failure would be recorded in the few cases where students did not perform at an acceptable standard, indicating that they had remained incorrectly placed. Some of this failure may be avoided if a satisfactory system of conceding passes at a lower level can be devised.

The maintenance of comparable standards between schools is a responsibility which the central authority must assume to ensure the acceptance of certificates by the community, irrespective of the school attended. This is a difficult task because the quality of student intake varies between schools and from year to year within the one school.

Special arrangements to establish comparability of standards for certification are therefore proposed for the core subjects. In order to assist schools in the placement of pupils, standardized tests will be made available for testing incoming students in English, mathematics, science and social studies. To ensure ease and reliability of marking, these tests will be multiple-choice objective as far as possible. The purpose of these tests will not be to assess individual students but to provide schools with guidance as to the number of students to be placed at each level. In making decisions in relation to the placement of individual students, schools should make use of all the evaluative information available to them; actual school performance is probably the most valid criterion available. Agents of the central authority would also visit schools to offer advice and satisfy themselves regarding internal assessment procedures. For Second and Third Years, attainment tests would be made available for schools to administer as desired, their purpose being to remedy errors, recognize the effect of sound teaching and facilitate transfer between levels. For purposes such as guidance and reporting to parents, schools would be free to devise their own testing and recording procedures.

IMPLEMENTATION

The implementation of these proposals will be gradual to ensure that teachers are familiar with all requirements and that the materials needed to facilitate group teaching are available. At the present time the core subject committees are continuing their work and the Curriculum Branch is proceeding to outline syllabuses at the different levels, and draft programmes and guides for teachers. The materials required for the first year of the scheme will be available for trial in selected schools in 1969. Sample copies for information will be supplied to non-participating schools and other interested persons.

The following pilot schools will introduce the scheme for their First Year students in 1969:

GOVERNMENT SCHOOLS

Senior High Schools

- Applecross
- Bunbury
- Geraldton
- Hollywood
- John Forrest
- Manjimup

Junior High Schools

- Waroona
- Nannup
- Northampton
- Pemberton

High Schools

- Como
- Harvey Agricultural
- Margaret River
- Newton Moore
- Rossmoyne
- South Fremantle

Primary Schools

- Broome
- Cue
- Meekatharra
- Mount Magnet
- Nyabing

NON-GOVERNMENT SCHOOLS

- Christian Brothers' College, Leederville
- Iona Presentation Convent, Mosman Park
- Loreto Convent, Claremont
- Mercedes Catholic School for Girls, Victoria Square, Perth
- Wesley College, South Perth

In order to preserve the interests of the students involved, the Public Examinations Board has agreed in principle to their being accredited with Junior Certificates in 1971 on the basis of their cumulative school records. This accrediting will be supervised by both the Achievement Certificate Central Council (until the central authority referred to earlier is appointed) and the Public Examinations Board. Assuming the successful introduction of these proposals into the pilot schools in 1969, it is hoped that a more general adoption will be possible in succeeding years and that ultimately it will not be necessary for the Public Examinations Board to conduct external examinations at the Junior level.

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[12] *Alternative*: an option (13) made available as an alternative to two periods in a subject.

[13] *Options*: French, Italian, German, Japanese, Indonesian—Malay, Art, Technical Drawing, Woodwork, Metalwork, Home Economics (two courses), Scripture, Music, Typing, Transport, Home Handyman, Personal Development, Commerce (a new course), Retail Trade, and Adjustment Classes in English, Social Studies, Science and Mathematics but not additional regular classes in these subjects. Other subjects such as Screen Education and Drama may be made available also. The availability of options will depend upon school policy and resources.

ORGANIZATION OF COURSES AND PERIOD ALLOCATIONS
(PROPOSALS 15th NOVEMBER, 1968)

FIRST YEAR—TERM ONE OR PART THEREOF

Subject	*Periods per Week*
English (Advanced, Intermediate, Basic)	6
French or Italian	2
Music	1
Library	1
Social Studies (Advanced, Intermediate, Basic)	6
Science (Advanced, Intermediate, Basic)	6
Mathematics (Advanced, Ordinary, Elementary, Basic)	6
Physical Education	4
Pastoral (including Health Education)	2
Special Religious Instruction	1
Manual Arts or Home Science	4
Art—Technical Drawing	2
Total	41

FIRST YEAR—REMAINDER OF YEAR

As for Term 1 except that students will choose either a foreign language (4 periods per week) or additional English (2 periods per week), Music (1 period per week) and Library (1 period per week).

Students deciding to study a foreign language will not be able to take Music as a school subject during Terms 2 and 3. This subject will be available to them as an option in Second and Third Years.

SECOND YEAR

Subjects	*Periods per Week*	
English (Advanced, Intermediate)	6	
or English (Basic)		or 4
and Alternative[12]		2
Social Studies (Advanced, Intermediate)	6	
or Social Studies (Basic)		or 4
and Alternative		2
Science (Advanced, Intermediate)	6	
or Science (Basic)		or 4
and Alternative		2
Mathematics (Advanced, Ordinary, Elementary)	6	
or Mathematics (Basic)		or 4
and Alternative		2
Spoken English	1	
Physical Education	3	
Pastoral (including Health Education)	2	
Special Religious Instruction	1	
Options[13]	10	
Total	41	

THIRD YEAR

As for Second Year, but options selected by students may vary from year to year, with no previous study of the subject required in most instances.

NOTES

1. *Library:* Students should spend one period per week in the school library on directed independent study supervised by the subject teacher for each of these subjects: English, Social Studies and Science.
2. *Physical Education* should be taught by specialist physical education teachers wherever possible and time-tabled for one double period and one single period for each class.
3. *Pastoral* is a special programme to be taught by the pastoral (form) teacher.
4. Courses in *Manual Arts* and *Home Economics* will be such as to be able to be taught in two double periods.
5. The availability of *French* and *Italian* will depend upon the size of the school.
6. In Years 2 and 3, students will be able to spend 10, 12, 14, 16 or 18 periods on optional subjects depending on whether they study 0, 1, 2, 3 or 4 subjects at the basic level.
7. Samples of course organization and staffing for a school with 100 students (three core classes) in each year follow. The proposals are capable of implementation as shown in these samples under existing staffing provisions. More liberal staffing would enable reduction in class size and/or a greater variety of options.

SOME POSSIBLE STUDENT TIME-TABLES—YEARS 2 OR 3

1. *Boy (Academic):* English—Advanced (6), Social Studies—Advanced (6), Science—Advanced (6), Mathematics—Advanced (6), French (4), Typing (2), Woodwork (2), Transport (2), P.Ed. (3), S.R.I. (1), Pastoral (2), Spoken English (1).
2. *Girl (Academic):* English—Advanced (6), Social Studies—Advanced (6), Science—Advanced (6), Mathematics—Advanced (6), French (4), Art (2), P.Ed. (3), H.Sc.—A (2), Personal Development (2), S.R.I. (1), Pastoral (2), Spoken English (1).
3. *Boy (General):* English—Intermediate (6), Social Studies—Intermediate (6), Science—Intermediate (6), Mathematics—Ordinary (6), Transport (2), General Metals (2), Technical Drawing (2), Woodwork (4), P.Ed. (3), S.R.I. (1), Pastoral (2), Spoken English (1).
4. *Girl (General):* English—Advanced (6), Social Studies—Intermediate (6), Science—Basic (4), Home Science A (2), Mathematics—Elementary (6), Home Science (2), Typing (2), Music (2), P.Ed. (3), Home Science B (2), Personal Development (2), Pastoral (2), S.R.I. (1), Spoken English (1).
5. *Boy (Non-Academic):* English—Basic (4), Transport (2), Social Studies—Basic (4), General Metals (2), Science—Basic (4), Woodwork (2), Mathematics—Elementary (6), Metalwork (2), Woodwork (2), Technical Drawing (2), P.Ed. (3), Woodwork (2), Metalwork (2), S.R.I. (1), Pastoral (2), Spoken English (1).
6. *Girl (Non-Academic):* English—Basic (4), Transport (2), Social Studies—Basic (4), Personal Development (2), Mathematics—Basic (4), Home Science—B (2), Science—Intermediate (6), Commerce (2), Art (2), Typing (2), P.Ed. (3), Home Science—A (2), Personal Development (2), S.R.I. (1), Pastoral (2), Spoken English (1).

SAMPLE COURSE ORGANIZATION AND STAFFING FOR A SCHOOL WITH 100 STUDENTS IN YEAR 1 (TERMS 2 AND 3)

	Subjects				P*	T**	P × T
1	English (Adv.)	English (Int.)	English (Basic)				
2	" "	" "	" "				
3	" "	" "	" "				
4	" "	" "	" "				
5	" "	" "	" "				
6	" "	" "	" "		6	3	18
7	Social Studies (Adv.)	Social Studies (Int.)	Social Studies (Basic)				
8	" " "	" " "	" " "				
9	" " "	" " "	" " "				
10	" " "	" " "	" " "				
11	" " "	" " "	" " "				
12	" " "	" " "	" " "		6	3	18
13	Science (Adv.)	Science (Int.)	Science (Basic)				
14	" "	" "	" "				
15	" "	" "	" "				
16	" "	" "	" "				
17	" "	" "	" "				
18	" "	" "	" "		6	3	18
19	Maths. (Adv.)	Maths. (Ord.)	Maths. (Elem.)	Maths. (Basic)			
20	" "	" "	" "	" "			
21	" "	" "	" "	" "			
22	" "	" "	" "	" "			
23	" "	" "	" "	" "			
24	" "	" "	" "	" "	6	3	18
25	Manual Arts (boys)		Home Economics (girls)				
26	" " "		" " "				
27	" " "		" " "				
28	" " "		" " "		4	5	20
29	Physical Education (boys)		Physical Education (girls)				
30	" " "		" " "				
31	" " "		" " "				
32	" " "		" " "		4	4	16
33	French	Additional English (Reading, Drama)					
34	"	" "					
35	"	Music					
36	"	Library			4	3	12
37	Art—Technical Drawing						
38	"				2	3	6
39	Pastoral						
40	"				2	4	8
41	Special Religious Instruction				1	3	3
				Totals	41	—	137

*Periods. **Teachers.
Note: During 1st Term all students would study French (two periods) and Music (two periods).

SAMPLE COURSE ORGANIZATION FOR A SECONDARY SCHOOL WITH 100 STUDENTS IN YEAR 2. (THIS COULD ALSO APPLY TO YEAR 3)

	Subjects					P*	T**	P × T
1	English (Adv.)	English (Int.)	English (Basic)			4	3	12
2	,, ,,	,, ,,	,, ,,					
3	,, ,,	,, ,,	,, ,,					
4	,, ,,	,, ,,	,, ,,					
5	,, ,,	,, ,,	Transport	Commerce		2	4	8
6	,, ,,	,, ,,	,,	,,				
7	Social Studies (Adv.)	Social Studies (Int.)	Social Studies (Basic)			4	3	12
8	,, ,, ,,	,, ,, ,,	,, ,, ,,					
9	,, ,, ,,	,, ,, ,,	,, ,, ,,					
10	,, ,, ,,	,, ,, ,,	,, ,, ,,					
11	,, ,, ,,	,, ,, ,,	Gen. Met.	Pers. Dev.		2	4	8
12	,, ,, ,,	,, ,, ,,	,,	,,				
13	Science (Adv.)	Science (Int.)	Science (Basic)			4	3	12
14	,, ,,	,, ,,	,, ,,					
15	,, ,,	,, ,,	,, ,,					
16	,, ,,	,, ,,	,, ,,					
17	,, ,,	,, ,,	Woodwork	H.Sc.—A		2	4	8
18	,, ,,	,, ,,	,,	,,				
19	Maths (Adv.)	Maths. (Ord.)	Maths. (Elem.)	Maths. (Basic)		4	3	12
20	,, ,,	,, ,,	,, ,,	,, ,,				
21	,, ,,	,, ,,	,, ,,	,, ,,				
22	,, ,,	,, ,,	,, ,,	,, ,,				
23	,, ,,	,, ,,	,, ,,	M.W.	H.Sc.—B	2	4	8
24	,, ,,	,, ,,	,, ,,	,,	,,			
25	French	Transport	Metalwork	H.Sc.—B	Comm.			
26	,,	,,	,,	,,	,,			
27	French	Typing	Art	Gen. Metals	Woodwork			
28	Music	Typing	Art	,,	,,			
29	French	Typing	Art	Tech. Draw.	H.Sc.—A			
30	Music	Typing	Art	,,	,,			
31	Woodwork	Metalwork	Transport	P.Ed. (boys)	P.Ed. (girls)			
32	,,	,,	,,	,,	,,			
33	Woodwork	Metalwork	H.Sc.—A	H.Sc.—B	Transport			
34	,,	,,	,,	,,	,,			
35	P.Ed. (boys)	P.Ed. (girls)	Woodwork	Metalwork	Pers. Dev.	12	5	60
36	,,	,,	,,	,,	,,			
37	Special Religious Inst.	P.Ed. (boys)	P.Ed. (girls)					
38	P.Ed. (boys)	P.Ed. (girls)	Special Religious Inst.			2	4	8
39	Pastoral					2	4	8
40	,,							
41	Spoken English					1	4	4
					Total	41	—	160

* Periods. ** Teachers.

HIGH SCHOOL TIME-TABLE

The allocation of periods to subjects explained in previous pages makes possible a standard pattern time-table for First, Second and Third Years. Two examples of such time-tables are attached, the first for schools having classes in each year numbering from one to eight, the second for schools with from 9 to 12 classes in each year.

Cross-setting

The establishment of different levels in the "core" subjects (English, Social Studies, Mathematics and Science) makes it desirable to "cross-set" these subjects on the time-table as widely as practicable, so as to allow regrouping in each subject on ability in that subject.

If there are two classes in one year it may be possible to time-table them both together for each of the core subjects, but with from 3 to 8 classes it would appear to be preferable to divide the classes into two groups A and B, and cross-set within the groups. This plan is referred to as "semi-cross-setting" and is illustrated in Time-Table A.

In larger schools (number of classes in a year above 8) semi-cross-setting would mean 5 or 6 classes cross-set together. This would still be possible and desirable for English and Mathematics, but the problem of providing sufficient equipment for this arrangement in Science and Social Studies would be very difficult.

It is therefore suggested that for these two subjects the classes be divided into *three* groups, while retaining semi-cross-setting for English and Mathematics. Time-Table B illustrates this plan.

It will be noticed that First and Third Year Science are frequently at the same time, while Second Year Science is separate. There are thus 26 periods of the week with lower school Science in *four* or *fewer* classes. Senior high schools could use these largely for upper school Science.

On these skeleton time tables the periods for all subjects other than English, Mathematics, Science, Social Studies, Scripture and Pastoral Care have been left blank, and there are sufficient "double" periods for fitting in Manual Arts, Home Economics, Art and Physical Education. In Second and Third Years blanks are available for Physical Education and all optional subjects.

Use of Colour for Time-Tables

Schools deciding to use colour for time tables may be interested in QUIK-STIK self-adhesive coloured labels (circular—½ in. diameter).

The ruled time table blanks supplied to schools are such that the labels may be lifted and moved many times.

If all schools using these coloured labels were to use the same arrangement of colours, this would be a distinct advantage to all teachers and officers moving from school to school. The following scheme is suggested:

> English—red; Mathematics—blue; Science—yellow; Social Studies—green; French (or other languages)—purple; Art and Craft—black; Physical Education—brown; Manual Arts and Home Economics—orange.

HIGH SCHOOL TIME-TABLE A

		First Year		Second Year		Third Year	
		A	B	A	B	A	B
MONDAY	1			E	M	SS	Sc
	2			E	M	SS	Sc
	3	E	M			Sc	SS
	4	M	E			Sc	SS
	5	SS	Sc	M	E		
	6	Sc	SS	M	E		
	7			SS	Sc	E	M
	8			Sc	SS	M	E
TUESDAY	1	Scripture		E	M		
	2	SS	Sc	Scripture			
	3	Sc	SS	M	E	Scripture	
	4	E	M			SS	Sc
	5	M	E			Sc	SS
	6			SS	Sc	E	M
	7			Sc	SS	M	E
	8	Pastoral		Pastoral		Pastoral	
WEDNESDAY	1	E	M			SS	Sc
	2	M	E			Sc	SS
	3	SS	Sc			M	E
	4	SS	Sc			E	M
	5	Sc	SS	E	M		
	6	Sc	SS	M	E		
	7			SS	Sc		
	8			Sc	SS		
THURSDAY	1	E	M	SS	Sc		
	2	M	E	SS	Sc		
	3			Sc	SS	E	M
	4			Sc	SS	E	M
	5	SS	Sc			M	E
	6	Sc	SS			M	E
	7			E	M	SS	Sc
	8			M	E	Sc	SS
	9	Pastoral		Pastoral		Pastoral	
FRIDAY	1	SS	Sc	E	M		
	2	Sc	SS	M	E		
	3	E	M				
	4	E	M				
	5			SS	Sc	E	M
	6			Sc	SS	M	E
	7	M	E			SS	Sc
	8	M	E			Sc	SS

HIGH SCHOOL TIME-TABLE B

		First Year			Second Year			Third Year		
		A	B	C	A	B	C	A	B	C
MONDAY	1	E		M	Sc	PE*	SS			
	2	M		E	SS	Sc	PE*			
	3	PE		MA-HEc		SS	Sc	E		M
	4	PE		MA-HEc		SS	Sc	M		E
	5	Sc	PE	SS	E		M	Sc		SS
	6	SS	Sc		E		M	SS		PE*
	7	MA-HEc	SS	Sc	M		E	PE*	SS	Sc
	8	MA-HEc	SS	Sc	M		E	PE*	SS	Sc
TUESDAY	1	Scripture			PE*	Sc		M		E
	2	E		M	PE*	SS		Scripture		
	3	M		E		Scripture		SS	Sc	PE*
	4	MA-HEc	PE		SS		Sc	E		M
	5	MA-HEc	PE		Sc		SS	E		M
	6		SS	Sc		PE*			SS	Sc
	7	SS	Sc			Past.			Sc	Past.
	8	Sc	MA-HEc	SS	E		M	Sc	PE*	SS
	9	Sc	MA-HEc	SS	M		E	Sc	PE*	SS
WEDNESDAY	1	Sc	SS		E		M	Sc	SS	Past.
	2	PE	Sc	SS	M		E	Past.	Sc	SS
	3	SS		Sc			PE*	E		M
	4	E		M			PE*	SS	Past.	Sc
	5		MA-HEc	PE	Past.	SS	Sc	M		E
	6		MA-HEc	PE	SS	Sc	Past.	M		E
	7	M		E	Sc		SS		PE*	
	8	M		E	Sc		SS		PE*	
THURSDAY	1	E		M	Sc	PE*	SS	Sc		
	2	M		E	PE	SS	Sc	Past.		
	3		Past.	Past.	SS	Sc		E		M
	4	Past.		PE	SS	Sc		M		E
	5	Sc	PE	SS					Past.	SS
	6	PE	SS	Sc					SS	Sc
	7	SS	Sc	MA-HEc	E		M	SS	Sc	PE*
	8	SS	Sc	MA-HEc	M		E	SS	Sc	PE*
FRIDAY	1	Pastoral			Sc	SS	PE*	E		M
	2	SS		PE	Pastoral			M		E
	3	E		M	PE*	Sc	SS			
	4	E		M	SS	PE*	Sc			
	5			Sc	E		M	PE*	SS	
	6		Sc	SS	M		E	PE*	Sc	
	7	Sc	SS					SS		Sc
	8	M		E				Sc		SS

In each section of First Year classes there are six blanks, to be allotted to French 2, Art 2, Music and Library, as desired.

After first term optional French will take four periods and the French groups will lose Library and Music.

All other groups will have SPOKEN ENGLISH and another period as desired.

*On each occasion when PE appears in SECOND and THIRD years, one class will have SPOKEN ENGLISH and hence each class will have THREE periods of Physical Education, not FOUR.

APPENDIX 9

ADOLESCENCE[14]

Adolescence is the period between childhood and adulthood; and for most young people in Western Australia today a not unimportant part of it corresponds to the time when they spend from three to five years or more in the secondary schools. Adolescence is not to be confused with puberty, which occupies a relatively short space of time, and is associated with the maturing of the sex glands. This usually occurs somewhat earlier among girls (from age 12 to 14 years) than among boys (from 14 to 16 years). But during the period of puberty, and in the years immediately preceding it, there is a rapid bodily growth, with girls tending to be taller than boys, and in weight about half a stone heavier.

The earlier stages of adolescence are characterized not only by the physiological changes of the puberty period, and transition from primary to secondary school, but also by changes in the adolescent environment as well as in the personalities of the adolescents themselves. Already at the primary level, the school for most children has inducted them into a social milieu wider than that of the home, and in association with other agencies, such as the church or youth and sporting organizations, has introduced them to aspects of the cultural heritage of our society, as well as to its social and moral norms. However, it is at the adolescent stage, and usually while at secondary school, that most boys and girls really begin their attempt to transcend the limits of their family ties and discipline and substitute new relationships including inter-personal relationships among themselves. In this way the age-mate group or peer group emerges with its challenge to adult standards, and its frequent worship of youth-oriented heroes, including singers and successful sportsmen.

While the purpose of the secondary school is mainly associated with knowledge and learning and the personal development of the student, informal influences outside the school cannot be disregarded in considering the problems of adolescence. Apart from the peer group, the mass means of communication today affect adolescent wants, attitudes and behaviour. Adults on the other hand are conservative in their paternal roles and so are school and church. These and other social agencies attempt to influence adolescents to conform to acceptable custom when the adolescents themselves are striving for personal independence and the satisfaction of personal accomplishment. Social and emotional maturity do not come easily; and adolescence for many is a time of tension and conflict not only for bodily reasons and social pressures, but because of the effects of transistor, radiogram, television, commercial advertising, and the availability of the motor car.

[14] Considerable reference has been made to a technical work-paper, prepared for the information of the Committee by Dr D. K. Wheeler, and entitled *The Adolescent Group*. Other references include: W. F. Connell, *et al.*, *Growing Up in an Australian City*, Melbourne, A.C.E.R., 1957; W. J. Campbell, *Growing Up in Karribee*, Melbourne, A.C.E.R., 1963; L. Cole and I. N. Hall, *Psychology of Adolescence*, New York, Holt, Rinehart and Winston, 1967; D. K. Wheeler, "The Adolescent Peer Group and its Activities", *Australian Journal of Higher Education*, 1, 1, 1961; "Expressed Wishes of Adolescents Still at School", *Australian Journal of Education*, 5, 2, 1961; and "The Adolescent at School in Western Australia", *Australian Journal of Education*, 6, 3, 1962.

Australia today conforms in many respects to the contemporary pattern of Western societies. There is increasing diversity; and social mobility is possible through education, parental support and government subvention allied to individual ability and initiative. Also in the adolescent groups at the present time, there are large numbers of migrant children or children of migrants. In addition, the society itself is becoming increasingly industrialized and urbanized; and while the differentials in power and authority between adults and non-adults continues, modern conditions are requiring children to stay longer at school and thus delay their entry into the productive life of the community. In other words, for many children, adolescence is becoming more prolonged, because, to meet the needs of modern society, an increasing proportion of each age group requires a longer secondary education or some form of tertiary education.

As already indicated, children, and especially adolescents, are committed to a process of internalization of cultural norms, which for some gives rise to social strain and individual maladjustment. Moreover, for adolescents generally the problems of choice and evaluation are not easy; and if there is too great an indeterminancy in the structure of adult expectations of young people, insecurity is engendered with its accompaniment of ambivalence and compulsive or contradictory behaviour. This problem now has considerable implications for secondary schools and especially for guidance, counselling and pastoral care. Furthermore, the increased mobility of modern transport, and frequently, divided control between home and school, provide the adolescent peer group with a measure of immunity from adult direction, which, for the individuals concerned, often leads to explosive behaviour or passive withdrawal, and to oddities in manners, appearance and dress. Nor is this all. The more extreme manifestations of adolescent rebellion take the form of defiance, truancy, sexual misbehaviour and delinquency.

Yet in spite of what has just been stated, the transition from adolescence to adulthood is successfully accomplished by most young people. But this does not mean that during adolescence they have not experimented with what they regard as adult behaviour; for adolescents take a broader view than their parents of activities which they believe will help them to become adults. Thus many adolescents apart from going out together, view smoking, drinking, betting, and reading books about sex as a means to the attainment of adulthood. Also according to sociological evidence, there appear to be some differences in attitude between the sexes during the adolescent period. Boys seem to be more influenced in their behaviour by the peer group and girls by parental attitudes.

Again, surveys of youth and adult opinion indicate that adolescents mostly value the same things as their parents. Or expressed in another way, there is no great divergence between what parents regard as desirable and what the peer group considers desirable. However, while adolescents still at school show a tolerance of minor faults, there is disapproval of behaviour forms held to be wrong in the society itself. Most adolescents do not consider that they gain in status by flouting moral codes and rebelling against adult authority. Indeed, such behaviour is often characterized as childish. Nevertheless, differences among adolescents do occur in their responses according to age. For example, attitudes towards the inter-relations between the sexes are different among younger and older adolescents.

However, from 6-8% of live births in the Australian States are ex-nuptial births, and of these about one-third arise from young people of adolescent age. Unfortunately, there is a considerable lack of knowledge among adolescents about sex, puberty, reproduction and birth; and this gives rise to the current dilemma whether such knowledge should be supplied by home or school. Adolescents worry about the bodily changes which occur with puberty.

For many of them the changes are a source of personal embarrassment. In a similar way, tall girls and short boys, or adolescents who are over-weight, are sensitive, and even over-sensitive, of any divergent physical characteristic.

Finally, the Australian culture places a high premium on sporting superiority, so that the athletic boy or girl, unless badly adjusted at home or school, usually has a positive image of himself or herself. In American studies, popularity in the peer group is associated with favourable personality characteristics such as good looks, good humour, fair mindedness and sporting ability. Moreover, popularity with the opposite sex involves similar characteristics to those which give rise to popularity among members of the same sex; and success in school work, especially when allied to favourable personality traits is a factor in adolescent leadership. However, girls in general show a greater enthusiasm for school than do boys; but whether boys or girls, adolescents lose interest and become depressed or resentful if they find themselves unable to measure up to normal scholastic tasks.

APPENDIX 10

Precis of "Statement on the Mental Abilities and Learning of the School Child"
(Implications have been deleted)
References are included in this appendix

CHAPTER 1

HUMAN ABILITIES

The Nature of Mental Abilities

British and American psychologists tend to differ in their interpretations of the nature of mental abilities. The writings of Vernon and Burt on what is called group-factor theory represent the British viewpoint that mental abilities tend to be generalized or essentially unitary in their nature. Thurstone, Guilford and Bailey are representative of the American viewpoint which emphasizes the diversity and atomistic nature of mental abilities.

Group-factor Theory. Group-factor theory originated in work done by Spearman (1927) who at first postulated two kinds of factors contributing to mental ability, a general factor designated "g" and numerous specific factors designated "s_1, s_2, s_3, . . ." Later he admitted the necessity for another set of factors such as mechanical and verbal abilities which ran through groups of, but not all, mental activities and hence could be designated "group-factors". Spearman minimized the importance of these group and specific factors and stressed the unitary nature of mental abilities as dominated by a massive "g" component.

Burt (1954, 1956) and Vernon (1951) clarified the nature of group factors and re-adjusted the emphasis on the general factor. Group factors are now classified as two major group factors (verbal—educational and practical mechanical) and several minor group factors (for example—number, verbal, mechanical information, spatial and manual dexterity). Their work has also shown that group factors and specific factors are quite significant in intellectual functioning. Factorial analyses of the variations which are found among the school marks of primary children show that approximately 40% of the variability in performance is attributable to the general factor, approximately 20% to the combined group factors and approximately 40% to the specific factors and errors of measurement.

The American Viewpoint. As opposed to the British viewpoint, many American psychologists have always favoured the view that human abilities are atomistic, numerous and diverse. Historically the work of Thorndike and, more recently, that of Thurstone and Guilford has supported such a viewpoint. Thurstone has postulated a number of individual but related mental abilities which he calls mental traits or primary mental abilities. He has identified seven, namely V (verbal comprehension), R (reasoning), N (number), S (spatial relations), P (perceptual speed), W (word fluency) and M (associative memory). He has also developed a battery of Primary Mental Abilities Tests, each test being designed to be a factorially pure measure of a particular mental trait. Guilford (1956, 1959) has presented a model which he uses to identify 120 possible kinds of mental functioning.

The Importance of "General Intelligence"

The Validity of the I.Q. as a Predictor. The *Encyclopedia of Educational Research* in summarizing the work of Margaret (1948) and Cronbach (1949) concluded that correlations between I.Q. and school grades averaged between 0·50 and 0·60. Coefficients of this order account for approximately 30% of the variability measured in children's scores. Similar findings indicating that I.Q. is only a moderate predictor of academic achievement have been published by Vernon (1951) and Schonell (1948).

The Stability of the I.Q. Sontag *et al.* (1958) conducted a longitudinal study based on yearly testing with the Binet individual test of some 80 children. They found that I.Q. could not be regarded as constant over any period during childhood. The longer the interval between the administration of two intelligence tests, the lower was the correlation between the two measures. (For example, the correlation between an I.Q. determined at age 5 and age 6 was 0·9, but between age 5 and age 12 it was only 0·6.) The writers claim that the extent of I.Q. change during childhood has previously been under-estimated as they found a median change of 18 I.Q. points. Bayley (1955) reported similar findings from the Berkeley Growth Study. She claims that I.Q. measures taken early in life do not reliably predict I.Q. at a later age; and, at least among superior educated adults, the I.Q. is not constant but rather it continues increasing, possibly even up to the age of 50 years or more. Other research, including that conducted by Honzik, Macfarlane and Allen (1948), adds further support to the conclusion that the I.Q. cannot be regarded as being fixed.

The Nature-Nurture Balance Sheet

The belief that general intelligence was determined by heredity and represented the child's innate potential was studied by Burks (1943), Burt (1956) and others. These studies have shown that about a quarter of the variability in children's intelligence test scores was due to educational-environmental factors (and error). Maddox (1957), quoting Vernon (1951), who in turn made reference to Shuttleworth, analysed the effect of environmental factors on intelligence test scores as follows:

64%	Hereditary factors
16%	Environmental differences between families
3%	Differences in upbringing between children in the same family
17%	Joint heredity-environment factors

It can be argued that it is fruitless to attempt to resolve the nature-nurture problem as the two interact but the data quoted at least indicates that intelligent behaviour is to a significant degree dependent on environmental-educational factors. Hunt (1961) claims that by a sound psychology of development we could raise the average intellect by an amount equivalent to 30 I.Q. points, and while this particular figure may not be accepted, it is evident that desirable modes of education can, and do, lead to an increment in intellectual efficiency within limits set by nature.

The Differentiation Hypothesis

Garrett (1946) and Burt (1954) have presented evidence supporting the differentiation hypothesis, which proposes that mental abilities become more specialized with maturity.

In recent years, most studies such as that by Meyer and Bendig (1961) have indicated that the degree of differentiation is not significantly different in adolescence from that in primary school years. O'Neil (1962), in summing up the research evidence on this topic, concluded that there was no real evidence to support the differentiation hypothesis.

The Origins of Intelligence

The work of Hebb, Harlow, Riesen and Piaget provides interesting insights into how intelligent behaviour originates. Hebb (1949) found no diminution of intelligence test results among mature people, even after removal of upwards of 20% of the mass of the cerebrum, whereas cerebral lesions in infancy resulted in retardations and markedly inferior mental ability. Apparently brain tissue needed for the development of intellectual functioning is not so needful for its maintenance. The need for the establishment of autonomous central nervous processes would explain why primary learning is characteristically slow in comparison with later intellectual functioning. Harlow's experiments (1949, 1950) show that animals (apes) learn how to learn, acquiring what Harlow calls "learning sets". However, these learning sets are only acquired through considerable problem solving experience. Riesen (1947) reports that chimpanzees deprived of normal visual stimulation for the first 16 months of life were markedly inept in visual skills. These visual deficiencies were attributed to a lack of primary learning, or the absence of central neural processes typically acquired in the course of living.

Piaget's description of three stages of intellectual development (sensori-motor, concrete operations and formal operations) is an outline of the manner in which higher forms of intelligent behaviour are achieved. A point brought out in many of the Piaget replication studies is that the child's experiences and the education he has received considerably influence the attainment of the stages.

Historically it has been usual to think of intelligence as separate and distinct from learning. However, the present tendency is to think of intelligence and learning under the one set of principles and to consider intelligence as, to some extent, the result of learning.

Individual Differences

The following conclusions may be drawn from Bassett's report (1964) of the conference on individual differences held in Melbourne in 1962, the *Sixty-first Yearbook* of the National Society for the Study of Education—Part 1 (1962), Goodlad and Anderson (1959), Jenkins (1961) and Stoddard (1961).

1. Wide variability of performance occurs at all levels of the primary school in all subjects.
2. There is increasing variability with increasing age—the higher the grade the wider the range of achievement.

Streaming or ability grouping based upon tests of general ability represents one approach to solving the problem presented by the wide range of individual differences among pupils of an age group within a school. According to Goodlad and Anderson (1959), separating children into A and B groups on the basis of general ability reduces variability in school achievement by about 7%, and an ABC grouping reduces class variability by about 17%. Again, when bright and slow children were separated from the average by removing children with I.Q.'s 120 and over and 90 and less, the remaining pupils exhibited a spread of achievement on reading tests ranging from Grade 3 to Grade 11. The following figures from a study carried out by the Education Department of Western Australia (1960) involving the testing of 905 Grade 7 children with tests of reading and general intelligence further illustrates the point that correlations between I.Q. scores and school achievement are only moderate.

(*a*) The I.Q.'s of Grade 7 pupils reading at Grade 7 level ranged from 70 to 130 plus.
(*b*) The I.Q.'s of Grade 7 pupils reading at Grade 4 level ranged from less than 70 to 109.

Clearly other factors besides general intelligence contribute to achievement in reading.

Bassett (1962) commented that the practice of separating children into A, B and C classes within a grade has some dubious advantages and some clear disadvantages. Teachers believe that individual differences have been catered for organizationally and neglect them; in fact, the practice encourages "class" methods of teaching. Secondly, the attitudes in "lower" groups are often unsatisfactory in that teachers frequently have a poor attitude to lower group children, and lower group children have poor attitudes towards themselves (negative self-feelings). The weight of evidence clearly indicates that homogeneity of classes must be recognized as a myth. We must expect, and accept, heterogeneity as the normal characteristic of any class.

CHAPTER 2

HUMAN ABILITIES IN ACTION

Thinking

Studies on thinking such as those by Bartlett, Bruner and Piaget show that it is a complex, high-level process in which words, symbols, shapes, colours, etc., supplement, or take the place of bodily movements. The application of previously acquired skills and information play an important part in this process of thinking.

Bartlett distinguishes between thinking within a closed system (interpolation) and thinking in an open system (extrapolation). In *closed systems* the thinker is trying to "fill in gaps" – that is, finding and supplying missing items in the information that is available to him. (For example, the identification and description of a person from items of information about him.) A characteristic of closed system thinking is the high probability that all thinkers given the same incomplete information would fill in the gaps in the same way. In a closed system there is a limited number of items. The way in which a gap is filled depends principally on the amount of information (items) given. Below a certain minimum amount, nobody can fill the gaps, and at a certain maximum no normal person can fail to fill the gaps. This ability to fill gaps may be related to intelligence. Procedures for gap-filling may be taught and learnt (e.g., the procedure of questioning to establish categories such as "Is the person male or female?"). Once the manner of gap-filling is selected, every step normally increases the probability of some specific subsequent slip. In *open systems* we range beyond the boundaries of known information and the process of thinking is even more complex. What is a closed system for one person could be an open system for someone with less knowledge.

In thinking one must be able to call upon information previously acquired, and upon responses already established. For these reasons it is justifiably called a high-level response closely integrated with simpler forms of learning such as retention, transfer and recall. Much thinking is of the nature of dealing with evidence which is given "in disguised form", such as is involved in the problem "Brothers and sisters have I none, but that man's father is my father's son."

Ryle (1951) maintains a position in harmony with that taken by Bartlett, Thomson and others, when he claims that thinking is largely a matter of "drills and skills", partly acquisition and partly performance of what has been acquired. When we have skills we can think, just as when we have skills we can multiply. Thomson (1959) says, "There is a continuous development from simple learning operations to the application and modification of prior learning in a problem-solving situation, which is a kind of 'thinking' ".

Creative Intelligence

Creativeness can be thought of as akin to thinking and problem solving in that every problem situation calls for some *originality* which may range from a slight re-arrangement or modification of familiar material to bold and almost completely new conceptions. Guilford (1959) analysed primary traits related to creativity and identified the following:

(*a*) A generalized *sensitivity* to problems.
(*b*) *Fluency* factors related to the fertility of ideas which included word fluency, associational fluency, expressional fluency and ideational fluency.
(*c*) *Flexibility*, in that creative thinkers are ready to strike out in new directions and these are of two types, namely, *spontaneous* flexibility (or freedom from inertia, perseveration, functional rigidity, etc.) and *adaptive* flexibility (as seen in novel solutions to problems and in clever, remote and unusual responses to situations).

Vinacke (1952) states that over-conformity, over-strictness, over-emphasis on the accumulation of factual information, over-emphasis on "drills", insecurity, dependency, and lack of self-reliance reduce creativeness.

The Work of Piaget

In recent years, mainly due to the influence of Piaget, there has been considerable attention given to the study of how the child thinks. Piaget has outlined the following sequence in the development of the child's scientific and logical thought:

1. **The Sensori-motor Stage** (approximately the first two years of life). The child deals directly with objects and because he lacks language, or has insufficient language to substitute words for actions, he is object tied. Sense impressions dominate over thought and the memory span is very limited.
2. **The Stage of Concrete Operations** (between the ages of 2 and 11 years approximately). This stage is subdivided into a pre-conceptual phase (2-4 years), an intuitive phase (4-7) and a phase of concrete operations (7-11). During this stage the child becomes

less object tied as he learns operations to free his thinking from the dominance of perception.[15] His span of apprehension is increased so that he can deal with a number (probably 4) of attributes of an object or situation simultaneously. He learns that thought processes are far more flexible than actions in that they can be reversed or obliterated. He becomes less ego-centric, more decentred in his thinking, and takes a more objective view of the world[16]. During this stage, which corresponds very closely with the primary school years, the child achieves methods of dealing with problems mainly by performing operations with objects.

3. **The Stage of Formal Operations** (approximately 12 plus years). At this stage physical processes (actions) can be replaced by mental structures and mental verbal manipulations. The child can now deal with propositions instead of objects, possibilities rather than the mere empirical situation and takes the final steps towards decentring in becoming able to think impersonally unrestricted by personal wishes and emotions.

Assimilation, Accommodation and Equilibrium. These concepts apply to all stages in Piaget's sequence. **Assimilation** occurs when the learner takes in or uses something from the environment. **Accommodation** occurs when the learner alters old activities and concepts or develops new ones in response to the impact of the environment. Intelligent behaviour is seen as an interplay of these two activities. **Equilibrium** can be interpreted to mean that the child should achieve mastery at one level before making what could be described as a forward leap towards a new level. It conceives mental progression as a series of forward drives each followed by a period of consolidation. The best way to facilitate the coming of the next stage is to help the child achieve mastery (equilibrium) in the present one.

Replication Studies. Replication studies have tended to confirm Piaget's findings, with some qualifications, mainly concerning overlap of the stages and the relevance of previous experience.

CHAPTER 3

LEARNING

Retention

The research evidence indicates that much of the factual data learned at school is rapidly forgotten. Bassett (1928) showed that after 12 months, Seventh and Eighth Grade students had forgotten 75% of the history they had known at the end of a course. Skinner (1956) refers to a study by Layton in which pupils retained only about one-third of their knowledge of algebra after a year in which they received no further instruction, and to a study by Johnson in which students in botany forgot 48% of what they had known after six months.

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[15] "Operation" is the name given by Piaget to such processes as classification (e.g., identifying a chair as such) and ordering (e.g., ordering sets of objects according to their number).

[16] "Centred" thinking occurs when attention is focused on one aspect of a problem and others are overlooked.

Other research evidence supports Cronbach's statement (1954) that "The most enduring and most useful learnings are generally understandings, attitudes and methods of work." Skinner (1956) refers to a study by Tyler which showed that after eight months the loss of factual information was 40%, the loss of ability to explain everyday scientific phenomena was 8% and the loss of ability to generalize from given data 6%.

The following is a summary of what is known about retention of learning:

(*a*) Factual material is rapidly forgotten, particularly if it is disconnected.
(*b*) Material which is meaningful, significant, interesting, connected, organized and well *understood* is retained better, especially if relationships and applications are "brought out in the teaching".
(*c*) "Over-learning" aids retention.
(*d*) Skills are comparatively permanent.
(*e*) Techniques and methods of handling data are relatively permanent.
(*f*) Attitudes are relatively permanent.

Transfer

Early studies such as those reported by Thorndike (1924) which showed little transfer were in situations that militated against transfer. In effect they showed that transfer does not occur automatically and completely in all situations. Later studies such as those reported by Woodrow (1927), Barlow (1937) and Bruce (1933) have shown that quite substantial transfer can be obtained depending on the manner in which the learning situation is handled. The research on transfer which has been summarized by McGeoch and Irion (1958), Webb (1956), Klausmeier (1961), Burton (1962) and Lindgren (1962) shows that the degree of transfer is variable and can be positive, zero or negative. Where the training situation closely resembles the criterion situation and the response required in the training situation is also appropriate for the criterion situation and the lapse of time between the two is not overlong the degree of transfer is maximized.

In addition to the specific forms of transfer as already described, *non-specific transfer* also occurs and may be even more important. The classical work in this area was done by Scholckow and Judd (1908) who conducted an experiment in which two groups of boys were taught to shoot at a target submerged 12 in. in water. One group of boys had the principles of refraction of light under water explained to them, the other group did not and proceeded by trial and error alone. Teaching continued until both groups were equally proficient at hitting the target. The target was then shifted to 4 in. deep. At this second task the boys who understood principles of refraction performed much better than those who did not. The explanation advanced was that these boys were able to generalize their knowledge of the principles of refraction. This experiment was carried out at a time when studies showing minimum transfer were typical and it was largely ignored until it was replicated by Hendrikson and Schroeder (1941), who confirmed the previous results. Webb (1956) refers to a study by Overman which aimed to determine the transfer effect of learning two place addition on learning addition and subtraction of three place numbers. It was found that where children were taught to understand the principles involved and to generalize the process consciously so as to be applicable to other types of problems, substantially more transfer occurred than when the children were only provided with specific instruction and practice. These and other studies have led to the conclusion that when children can generalize their experience in the form of the understanding of principles they can transfer these understandings to new situations.

Other instances of non-specific forms of transfer subject to quite substantial transfer are attitudes and methods of attack in problem situations.

Klausmeier (1962) summarizes the position on transfer as follows:

> Positive transfer from one situation to others, including from in-school to out-of-school, from one subject field to another, and from one grade level to another, can be facilitated by making certain the task is meaningful and not too difficult, by emphasizing the principles and methods of problem solving rather than specific procedures and correct solutions, and by giving help to the learner as needed.

How Learning Occurs

Textbooks on learning have characteristically presented two views on how learning occurs. Firstly, and almost always given greatest prominence, is the *behaviouristic* viewpoint, and secondly is the viewpoint of the gestaltists. In recent years the *mediation hypothesis* has been advanced which largely reconciles both viewpoints.

The Behaviouristic Viewpoint. The behaviouristic viewpoint is best represented by the work of Thorndike, Pavlov, Hull and Skinner and involves stimulus-response learning or learning by reinforcement. The contributions of behaviourist learning theorists to our knowledge of factors influencing learning have been considerable, especially those of Thorndike and Guthrie. For example, the necessity for both teacher and learner to know the characteristics of a "good response" (if inappropriate responses are rewarded by the teacher they will be learnt), the need to diagnose and correct errors, the need for clarity and specificity, the need for interest in the work, interest in improvement, a problem-solving attitude, attentiveness and significance of material. Thorndike's laws of readiness, exercise, recency, frequency, intensity and effect are other concepts important to education. Most of the improvement commonly attributed to drills (exercise) is largely due to the action of rewards (effect), if "rewards" is taken to include the satisfaction of making a correct response. The feeling of success, of being right, of gaining recognition, and acknowledgement (such as a smile, a tick against an answer, the words "right", "good lad", etc.) are the strongest operational factors in bringing about improvement. Rewards are more important than repetitions. Ideally there should be no "exercise" without effect. Drills should be planned so that rewards operate at a maximum.

Klausmeier (1962) provides the following principles applicable to developing skills.

(*a*) Guide responses carefully in the early stages.
(*b*) Provide appropriate practice tasks.
(*c*) Distribute rather than mass practice.
(*d*) Provide the learner with knowledge of results. (When a child is told his response is correct it is a much more precise guide to future action than being told that the response was wrong.)

The Gestalt Viewpoint. The gestalt viewpoint is that put forward by the German psychologists Werthiemer, Koffka and Kohler. These people would agree that behaviourism can explain the formation of relatively simple habits but they would further claim that such learning is comparatively trivial. Adult human learning in their view is far removed from the establishment of simple stimulus-response connections and involves intentions to learn, conscious experience, the ability to be constructive and critical, the ability to achieve insights and to transpose or generalize such insights. *Insight* is the key concept and occurs when the learner is able to organize the parts (of a problem, for example) into a meaningful whole.

Learning then consists of a progressive re-organization of and improvement in insights. This is somewhat analogous to Piaget's concepts of assimilation and accommodation. The weakness of the gestalt viewpoint is the circularity involved in equating learning with insights, which leads to the conclusion that one learns by learning.

The Mediation Hypothesis. The work of Osgood (1953) is the most significant in this area, but Mowrer (1954), Postman and Sassenrath (1961), Krasner (1958) and Kendler and Kendler (1962) have also contributed. According to this theory, mediating processes such as thinking occur between a stimulus and the response which occurs. It bridges the gap between reinforcement learning theories and gestalt or cognitive learning theories and similarly tends to form a bridge between learning and thinking, suggesting that basically these functions are liable to the same explanation. A brief explanation of the mediation hypothesis is to be found in Thomson (1959).

The Social Situation of Learning

Alpert (1961) warns of the danger which lies in an over-emphasis on social forms of motivation which are often anxiety laden. Lippett (1961) has drawn attention to the fact that "at all age levels we need and depend on the acceptance of, the inclusion in, meaningful strong groups". In recent years there has been considerable interest in the relationship of achievement to anxiety. The Yerkes-Dodson Law shows that for a given task there is an optimum anxiety level and when anxiety is too high performance falls off. Studies of the relationship of anxiety to learning show that high anxiety leads to high achievement on comparatively simple routine tasks but to low achievement on more difficult problem-solving tasks. Problem-solving is best done under conditions of low anxiety.

Thelen (1961) made a study of "teacher-style" and showed that when styles were teacher-centred recall was much inferior to that obtained when a learner-centred style of teaching was observed.

CHAPTER 4

THE NEEDS OF THE CHILD

The needs of the child have been analysed by various writers of whom possibly the most discussed is Maslow (1954) who in his theory of human maturation, postulates six groups of needs, namely: physiological needs, safety needs, belongingness and love needs, esteem (or status) needs, self-actualization needs and the need to know and understand. These groups are sequential in that normally each one assumes maximum strength at a specified period but, if satisfied at the appropriate time, it wanes in strength and the need occurring next in the sequence assumes dominance. If any particular need is not satisfied at the appropriate level, it continues to persist at strength and seriously interferes with those needs placed later in the sequence. The following diagram illustrates the normal occurrence and waning of five of these needs.

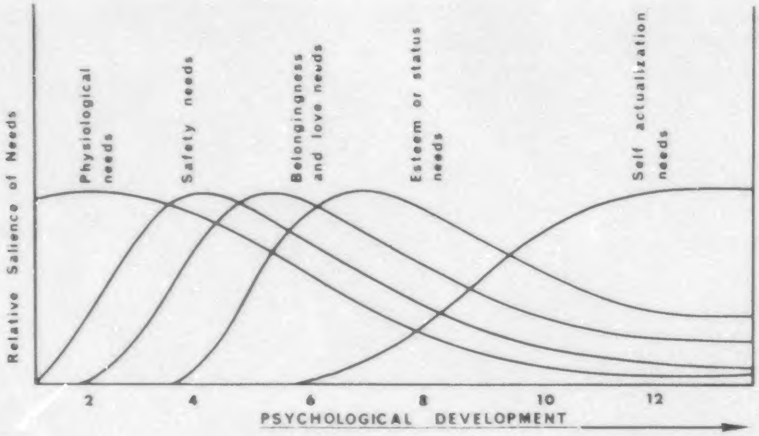

Figure 13

PSYCHOLOGICAL DEVELOPMENT

Running through Maslow's higher needs there is a considerable emphasis upon what Murray (1938) had earlier called the need for achievement. Murray and McClelland *et al.* (1953) had stressed the need for children to achieve in skills and activities held in esteem by the peer group and by the adult groups. Through achievements, especially those in reading, arithmetic, spelling and the school subjects generally, and in play and sporting activities, the child comes to a feeling of inner strength. Lobdell and Van Ness (1963) point out that children need to have access to, and association with, their peers in achievement, not just their peers in age.

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APPENDIX II

PERCENTAGE DISTRIBUTION OF FIRST YEAR STUDENTS IN GOVERNMENT SECONDARY SCHOOLS ACCORDING TO APPROXIMATE PERCENTILE RANKING OF SCORES ON READING COMPREHENSION TEST FOR WEST AUSTRALIAN HIGH SCHOOLS, FORM A (W.A., 1968)

School (Ranked by size of First Year Population	First Year Population	Percentile Ranking (Approximate)		
		100-71	70-31	30-1
	(Total for State, 11,500)	30%	40%	30%
1	420	37	39	24
2	420	21	58	21
3	410	28	49	23
4	410	23	53	24
5	410	19	53	28
6	380	27	43	30
7	380	17	59	24
8	370	28	50	22
9	360	26	46	28
10	350	43	42	15
11	350	38	45	17
12	350	14	68	18
13	350	26	47	27
14	350	25	48	27
15	340	30	44	26
16	330	24	44	32
17	320	21	51	28
18	320	20	48	32
19	320	19	41	40
20	310	21	47	33
21	300	19	51	30
22	300	31	49	20
23	300	34	47	19
24	280	22	54	24
25	280	20	51	29
26	260	32	45	23
27	250	23	48	29
28	220	39	50	11
29	200	28	43	29
30	200	23	55	22
31	200	49	31	20
32	190	27	48	25
33	180	30	39	31
34	160	22	53	25
35	150	18	41	41
36	150	25	41	36
37	150	25	49	26
38	140	16	54	30
39	140	13	44	42
40	130	30	42	28
41	130	26	48	26
42	120	25	49	26
43	120	22	44	34
44	120	16	47	37
45	80	23	41	36
46	70	24	58	18
47	70	26	48	26

APPENDIX 12

MATHEMATICS III (GEOMETRY AND TRIGONOMETRY)

(a) LARGE SCHOOLS

Percentage of First Year Intake Passing Junior Three Years Later

School No.	First Year Intake (To nearest ten) 1965	1964	1965	1966	1967	Range
1	500	24	32	20	18	14
2	460	—	18	19	17	—
3	460	34	31	24	24	10
4	440	32	39	30	40	10
5	410	15	23	21	25	10
6	410	14	18	17	13	5
7	400	24	32	31	28	8
8	400	38	31	29	34	9
9	400	24	30	21	14	16
10	400	—	—	—	23	—
11	390	21	23	19	22	4
12	390	12	14	19	22	10
13	380	20	19	21	26	7
14	360	16	22	19	18	6
15	360	—	—	—	26	—
16	340	11	9	11	14	5
17	320	—	—	—	15	—
18	310	25	19	21	19	8
19	290	24	25	14	30	16
20	260	15	20	16	21	6
21	260	25	28	24	30	6
22	230	21	18	18	16	5
23	230	29	28	24	27	5
24	200	17	15	20	33	18
25	180	22	28	21	20	8
26	180	25	20	16	19	9
27	180	10	23	19	28	18
28	150	22	16	8	28	20
29	150	—	—	—	23	—
30	140	19	17	14	23	9
31	140	26	17	12	12	14
32	140	33	33	21	33	12
33	140	16	11	14	12	5
34	120	18	19	17	20	3
35	120	12	26	16	20	14
36	110	16	14	18	14	4
37	100	11	15	16	15	5
38	100	12	15	18	12	6
39	100	21	23	29	25	8
Average	270	21	22	19	22	9
Range	100-500	10-34	9-39	8-31	12-40	3-20

MATHEMATICS III (GEOMETRY AND TRIGONOMETRY)

(b) SMALL SCHOOLS

Percentage of First Year Intake Passing Junior Three Years Later

School No.	First Year Intake (To nearest ten) 1965	1964	1965	1966	1967	Range
40	90	—	—	21	11	—
41	60	10	14	10	14	4
42	60	9	21	22	12	13
43	50	34	18	24	23	16
44	50	15	36	6	4	32
45	50	21	17	12	24	12
46	40	30	21	36	30	15
47	40	—	—	10	20	—
48	40	2	12	6	7	10
49	40	32	23	24	27	9
50	40	10	18	12	18	8
51	40	26	39	23	32	16
52	40	33	27	9	14	24
53	40	21	24	38	19	17
54	40	8	8	9	25	17
55	40	22	33	18	14	19
56	40	10	17	24	22	14
57	30	9	—	3	21	—
58	30	8	12	17	18	10
59	30	4	5	—	13	—
60	30	10	19	14	26	16
61	30	7	8	31	3	28
62	30	4	7	15	—	—
63	20	4	9	17	10	13
64	29	18	16	—	12	—
65	20	6	14	4	33	29
66	29	—	40	24	35	—
67	20	47	36	10	7	40
68	20	—	—	—	18	—
69	20	20	17	7	18	13
70	20	9	7	14	19	12
71	20	6	21	9	18	15
72	20	—	17	—	33	—
73	20	9	27	9	11	18
74	20	—	—	—	25	—
75	20	—	—	—	16	—
Average	30	15	20	16	19	17
Range	20-90	2-47	5-40	3-38	3-35	4-40

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GLOSSARY OF TERMS

Certain terms will recur throughout this report and to avoid misunderstanding their usage is defined below. Where a defined term is otherwise used it will be shown in quotation marks. In defining these terms use has been made of Good's *Dictionary of Education* (61).

ability. The actual power present in an organism to carry to completion any given act or to make adjustments successfully.

ability grouping. Used in the United States to refer to the grouping of students according to general ability. See *streaming*. Sometimes used in relation to grouping of students according to their ability in a specific subject.

above-average (students). That quartile of the student population with the highest level of achievement in a subject.

acceleration (courses of study). The organizational procedure whereby students' progress through a common course at different rates. See also *unit progress*. This may or may not involve accelerated promotion in terms of grade placement.

acceleration (student promotion). The process of completing the school grades at a rate of more than one per year.

achievement. Accomplishment or proficiency of performance in a given skill or body of knowledge.

Achievement Certificate. A certificate awarded to students when they leave secondary school or at the end of Third Year by schools participating in the Achievement Certificate Project.

Achievement Certificate Project. A project being conducted in some Western Australian secondary schools to assess the practical implications of student assessment based on a cumulative record of achievement.

affective (objectives of education). Objectives which describe changes in interest, attitudes, and values, and the development of appreciations and adequate adjustment.

appreciation. An emotionally fringed awareness of the worth, value, or significance of anything.

aptitude. A group of characteristics, native or acquired, deemed to be symptomatic of an individual's ability to acquire proficiency in a given area.

assessment. Used synonymously with evaluation.

attitude. A readiness to react toward or against some situation, person, or thing, in a particular manner, for example, with love or hate or fear or resentment, to a particular degree of intensity.

average (students). That half of the student population whose level of achievement in a subject most closely approximates the mean.

behavioural (objectives). Objectives stated in terms of behaviour which can be observed and described.

below-average (students). That quartile of the student population with the lowest level of achievement in a subject.

class (students). A group of students receiving instruction from a teacher.

cognitive (objectives of education). Those objectives which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills.

Committee. The Committee on Secondary Education (1957-59).

Committee of Inquiry. The Committee which met during 1962 and 1963 to review progress made in secondary education following the 1954 Report.

comprehensive (secondary school). The programme includes both general education courses and specialized fields of study and thus offers academic, commercial and technical subjects. Contrast with specialized secondary school.

core (subjects). English, mathematics, science and social studies.

creativity. Creativeness can be thought of as akin to thinking and problem solving in that every problem situation calls for some originality which may range from a slight re-arrangement or modification of familiar material to bold and almost completely new conceptions.

cross-setting. The organizational procedure of time-tabling two or more classes for the same subject at the same time so that class groupings may be formed on the basis of ability in the particular subject.

Cumulative Certificate. A term used previously to refer to what is now known as the Achievement Certificate.

curriculum. A group of courses and planned experiences which a student has under the guidance of the school.

Department. The Education Department of Western Australia.

differentiated instruction. Teaching in accordance with the individual's level of achievements and needs at that level, utilizing class, small group, and individual activities, the emphasis being placed on reading as a social tool.

Director-General. The Director-General of Education in Western Australia.

education. The aggregate of all the processes by means of which a person develops abilities, attitudes and other forms of behaviour of positive value in the society in which he lives.

enrichment (courses of study). The curricular provision for advanced work or further specialization in the same area of learning.

evaluation. The process of ascertaining or judging the value or amount of something by careful appraisal.

external examinations. Examinations conducted by an authority external to the school attended by the student. For example, the Junior examinations conducted by the Public Examinations Board.

general (education). Education broadly directed towards the aims of education as outlined in Chapter 4 of this report. Contrast with vocational education.

gifted (student). A student in the top 2% of the total population in terms of his achievement in some specific area.

group teaching. The differentiation of instruction by subdividing a class into groups according to ability so that each group can be provided with instruction at an appropriate level.

Guidance Branch. Guidance and Special Education Branch of the Education Department of Western Australia.

habit. An act, movement, or pattern of behaviour that through practice has become easy and familiar, and is performed without conscious thought, hesitancy, or concentration.

handicapped (student). A student in the bottom 2% of the total population in terms of his achievement in some specific area.

headmaster. Includes principal or headmistress.

high school. A secondary school which has students in the First, Second and Third Years only of a secondary course.

High School Certificate (courses). Courses for students in the lower 20% in terms of general academic ability.

instructing. Presentation of information for the purpose of developing knowledge and understanding, habits and skills, attitudes and appreciation.

intelligence. Ability to make successful and rapid adaption to new situations and to learn from experience; as commonly used in measurement and testing, a degree of ability represented by performance on a group of tests selected because they have proved their practical value in the prediction of success in academic work and in some vocations.

Junior (examination). An external examination conducted by the Public Examinations Board and taken by most students at the end of Third Year.

junior high school. A primary school which has an average daily attendance of over 150 pupils and which has an average attendance of over 25 students in the First, Second and Third Years of secondary courses, and has been declared a junior high school by the Director-General.

junior primary (grades). Grades 1, 2 and 3.

knowledge. The accumulated facts, truths, principles, and information to which the human mind has access.

Leaving (examination). An external examination conducted by the Public Examinations Board and taken by most students at the end of Fifth Year.

lower school. The students in First, Second and Third Years of a secondary school.

matriculation. The formal process, completed by registration, of being admitted as a student to the rights and privileges of membership in a university.

moderators. Persons appointed by a certifying authority to visit and observe or otherwise satisfy themselves that certain criteria are met by schools.

modification (courses of study). An adjustment to the requirements of a course of study whereby more advanced work is deleted.

multi-level (courses). Curriculum differentiation whereby courses of different levels of difficulty are provided for students according to ranges of ability.

Neal Report. The Secondary School Curriculum (4).

norms (test). Norms give information about a performance of a particular group on a particular test and thereby provide a set of criteria against which can be compared the performance of any individual taking that particular test.

objectives. Explicit formulations of the ways in which students are expected to be changed by the educative process.

optional (subject). A subject offered in a school which students are not required to study.

over-age (students). Students born a year earlier than most students in the year, or grade.

over-learning. Learning as a result of more or longer practice than would be needed for immediate recall or for immediate performance at a given level of skill; regarded as necessary to ensure delayed recall following disuse.

percentile. A point on a scale of test scores below which a given percentage of the scores falls, thus the 25th percentile is the score below which 25% of cases fall.

pre-vocational (education). Those phases of the educational programme which provide experiences for exploratory and guidance purposes rather than as preparation for a specific occupation.

promotion (students). Upward change in the classification of a pupil; for example, from Year 1 to Year 2.

Public Examinations Board. A board constituted by the University of Western Australia to conduct examinations at the Junior and Leaving levels in this State.

retardation (student promotion). The process of completing the school grades at a rate of less than one per year.

Robertson Report. Report on Secondary Education 1963 (3).

selective (secondary school). Entry is restricted on grounds other than geographic location.

secondary school. A high school or senior high school.

secondary student. A student following a secondary school course in either a secondary or primary school.

senior high school. A secondary school that has students in the First, Second, Third, Fourth and Fifth Years of a secondary course.

skill. Anything that the individual has learnt to do with ease and precision; it may be a physical or mental performance.

special (student). A general term to include the gifted and the handicapped.

specialized (secondary school). The educational programme is designed especially for pupils training for specific vocations or fields of specialized interest; for example, an agricultural high school, technical high school, or academic high school. Contrast with comprehensive secondary school.

stage (course of study). A term used in relation to primary school courses in Western Australia to refer to a part of a subject syllabus which an average student is expected to complete in one school year.

standardized test. A test for which content has been selected and checked empirically, for which norms have been established, for which uniform methods of administering and scoring have been developed, and which may be scored with a relatively high degree of objectivity.

streaming (students). The grouping of students on the basis of general ability for instruction in all or most subject areas.

syllabus. A condensed outline or statement of the main points of a course of study including objectives, teaching methods, selection and organization of content and evaluation techniques.

teaching. (1) Narrowly, the act of instructing in an educational institution; syn. instructing. (2) Broadly, the act of providing activities, materials, and guidance that facilitate learning, in either formal or informal situations.

Teachers' Union. The State School Teachers' Union of Western Australia.

term. A term is one-third of a school year: First Term—February to May; Second Term—May to August; Third Term—August to December.

transfer of training. The influence that the existence of an established habit, skill, idea, or ideal exerts on the acquisition, performance or relearning of another similar characteristic. Such influence may facilitate new learning (positive transfer), retard or inhibit new learning (negative transfer), or be of negligible effect on new learning (zero or indeterminate transfer).

under-age (students). Students born a year later than most students in the year, or grade.

unit (course of study). A term used in relation to Achievement Certificate courses in West Australian secondary schools to refer to a part of a subject syllabus which an average student is expected to complete in one school year. In the primary school Unit Progress Plan a unit is a term's work for the average student.

unit-progress. A means of providing differentiated instruction whereby students complete one unit of work satisfactorily before progressing to the next. Time is a variable for individuals or groups of students.

upper school. The students in Fourth and Fifth Year in a secondary school.

vocational (education). Those phases of the educational programme which prepare the learner for entrance to a particular chosen vocation.

year. A subdivision of secondary schools composed mostly of students born during the same year; for example, First Year, Second Year, etc.

1954 Report. Report of the Committee on Secondary Education, 1954 (1).

1958 Report. Interim Report of the Secondary Schools' Curriculum Committee, 1958 (2).

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